Table 3, add'l matter [illegible]

REPORT

# of the

SAN FRANCISCO WATER DEPARTMENT

FISCAL YEAR
1949-1950

G. W. PRACY
GENERAL MANAGER AND CHIEF ENGINEER

REPORT

of the

SAN FRANCISCO WATER DEPARTMENT

FISCAL YEAR
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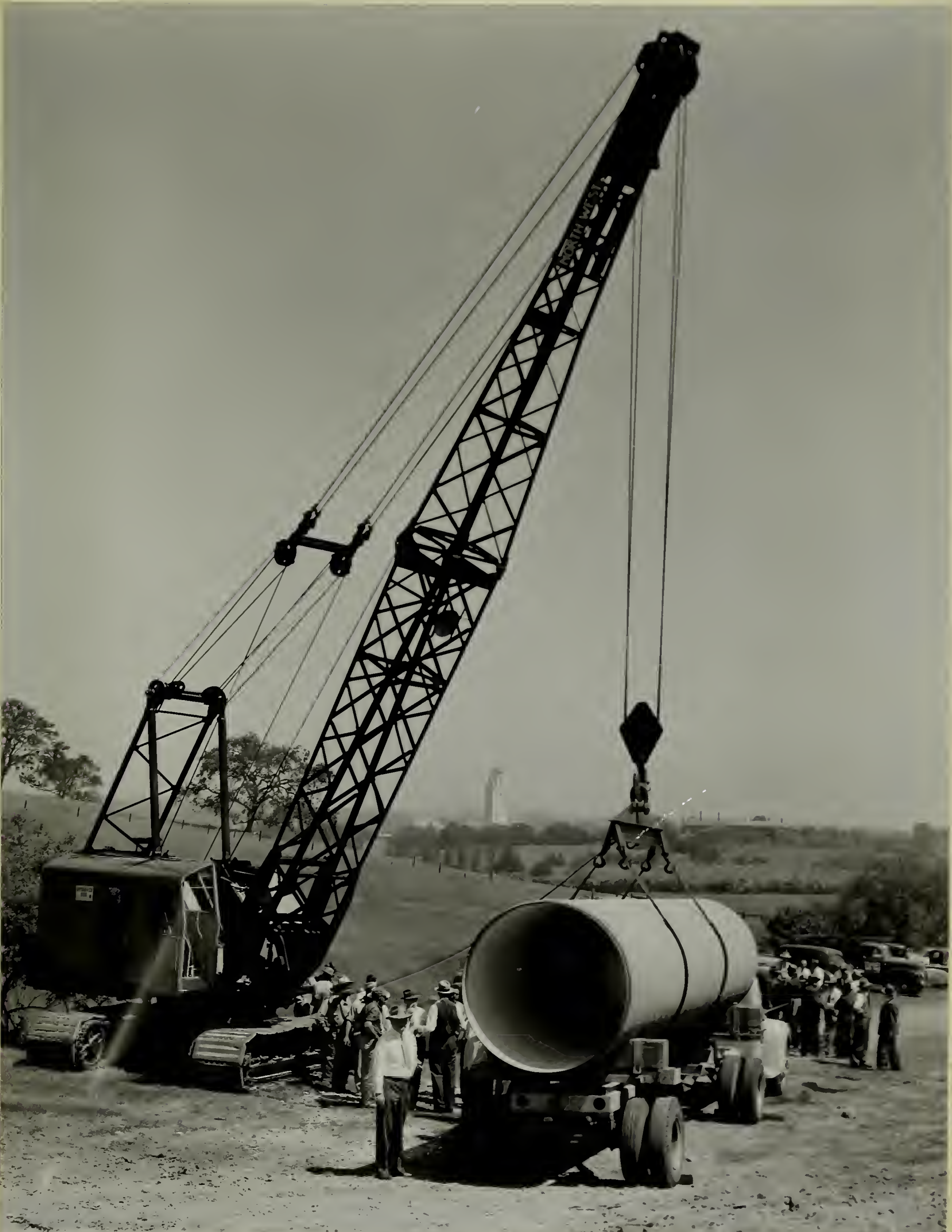

PICKING UP FIRST 72" PIPE FOR LAYING IN BAY DIVISION PIPELINE NO. 3. HOOVER TOWER OF STANFORD UNIVERSITY IN BACKGROUND.

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SAN FRANCISCO WATER DEPARTMENT

G. W. PRACY
General Manager and Chief Engineer

In the early days of San Francisco, the "Days of Forty-Nine", water was obtained from wells and natural springs and until 1858, consumers bought their water by the barrel. The water-wagon stopped at the door, or if the consumer lived on a height as many did, his barrel of water was delivered at the foot of the hill and he toted the water home in buckets. Competition was so keen among the water purveyors that water was "cheap" to regular customers -- as "cheap" as one dollar for a fifty gallon barrel. Today, 50 gallons of water, not delivered in a barrel but through the faucet of the consumer's home or business, even though on the highest hill of San Francisco, costs less than two cents.

Distribution of water continued from the early days under private ownerships until the San Francisco Water Department, a municipally owned utility, formally took over the operative water properties of the Spring Valley Water Company at noon of March 3, 1930 and this municipal department has since distributed water to its consumers at moderate rates that have yielded a sound financial return upon the City's investment.

The present available capacity for storage and distribution of water within the City and for bringing water into San Francisco from the peninsula reservoirs is now taxed to full capacity of the system on days of peak consumption which occur during periods of high temperature. Any extended interruption of service through one of the six transmission lines from the peninsula reservoirs, during periods of peak consumption, would seriously cripple San Francisco's water supply. In order that serious interference and curtailment of water delivery may be avoided in the future, it is imperative that the Capital Improvement Projects recommended in the "1950-56 Capital Improvement Schedule" be authorized within the periods indicated in the Schedule.

The annual report of this year follows the same general outline of previous years in order to give continuity of record and to provide ready reference comparison of operating results from year to year. Following this forward, a more detailed description is provided of the Department's operations during the year ending June 30, 1950, and this in turn is followed with an Appendix and a listing of Organization and Personnel.

Rainfall for the past eight years has been below normal with consequent lessened runoff from watershed areas. Due to

runoff deficiencies in local areas, it was necessary during the entire year, to continue to draw on Hetch Hetchy supply sources to near maximum capacity of the San Joaquin Pipeline and in addition, to draw heavily on reserve storage in the Calaveras and peninsula reservoirs. Withdrawals reduced Calaveras reservoir storage to 0.3 of a billion gallons on January 8, 1950, and the peninsula reservoirs were reduced at that time to twenty billion gallons, an equivalent of 200 days' water supply. Subsequent runoff only partially replenished local storage and as a consequence, it is probable that Calaveras reservoir storage will again be at a low point of 3.7 billion gallons and that peninsula storage will be reduced to 15.4 billion gallons by Christmas 1950, which date is normal time for start of runoff.

Water consumption for the entire system during the year ending June 30, 1950, averaged 102.7 million gallons daily, a decrease of 0.5 million gallons daily under the preceding year. Of this total, 83.1 million gallons daily were used in San Francisco and the balance of 19.6 million gallons daily were used by suburban consumers.

The peak 24 hour demand on the system, occurring on June 29, 1950, was 139.1 million gallons, as compared to the previous all time peak of 138.3 million gallons on June 22, 1948.

The low 24 hour demand on the system, occurring on April 9, 1950 was 71.8 million gallons as compared to a low 73.3 million gallons on February 13, 1949.

The month of June, 1950 had the highest daily average demand of any month during the year averaging 120.7 million gallons per day as compared to an average 124.4 million gallons per day in June 1949.

Water sales for the year amounted to $10,774,944, a decrease of $157,410 or 1.4 per cent under the previous year. Accounts within the city limits decreased by $245,627 making a total net sales within the City of $9,061,640 or 84.1 per cent of the department's total sales. Suburban net sales increased $88,217, making a total suburban sales of $1,713,304 15.9 per cent of the department's total net sales. This decrease in sales, for the past year within the City, is due principally to the adoption, in October 1949, of a bi-monthly billing of residential and small commercial accounts whereby invoices for about one half of the department's accounts were deferred in billing until the second month of change to bi-monthly procedure. The decreased sales thus represent a lag and not a loss in revenue. This new plan for bi-monthly billing is expected to eventually save, in expense, at least $80,000 annually.

The number of active consumer accounts increased from 143,221 on June 30, 1949 to 145,080 on June 30, 1950, a gain of 1,859.

Accounts determined to be uncollectable totaled $2,022, a decrease of $626 over the preceding year.

On June 30, 1950 the total number of water meters in service was 148,798, an increase of 1,979 during the year. (Metering of the entire system was completed in 1918).

Personnel employments amounted to a total of 534 on June 30, 1950 including 88 temporary employments.

During the year 472.2 acres of land were sold and 140.6 acres were purchased, making a net decrease of 331.6 acres during the past year, and resulting in a total of 63,275.3 acres being held under the Department's jurisdiction, of which 35,340 acres are leased under 137 lease holdings.

Disinfection of all water supplies has been continuous and all consumers received water that was in full compliance with the bacteriological standard established by the United States Public Health Service for drinking water purity.

During the fiscal year, the department prepared 33 contracts for construction work and for furnishing of equipment, totaling in amount to over $8,750,500.

Contracts for the construction of Bay Division Pipe Line No. 3 were awarded November 23, 1949 at an estimated total amount of $8,344,000. Completion of this work is scheduled for October 28, 1951. This pipeline is aligned to follow a dry-land route around the south end of San Francisco Bay, from Irvington Portal to the easterly portal of Pulgas Tunnel, a distance of about 34 miles. The pipeline will be 78" in diameter for the 8.5 miles from Irvington Portal to Milpitas and 72" in diameter for its remaining length of 25.25 miles. Capacity of this pipeline will be about 76 million gallons daily.

Services of H. G. Butler were engaged October 19, 1949 as a rate expert, to survey and make written report on present water rate charges and revisions to same if changes were considered advisable.

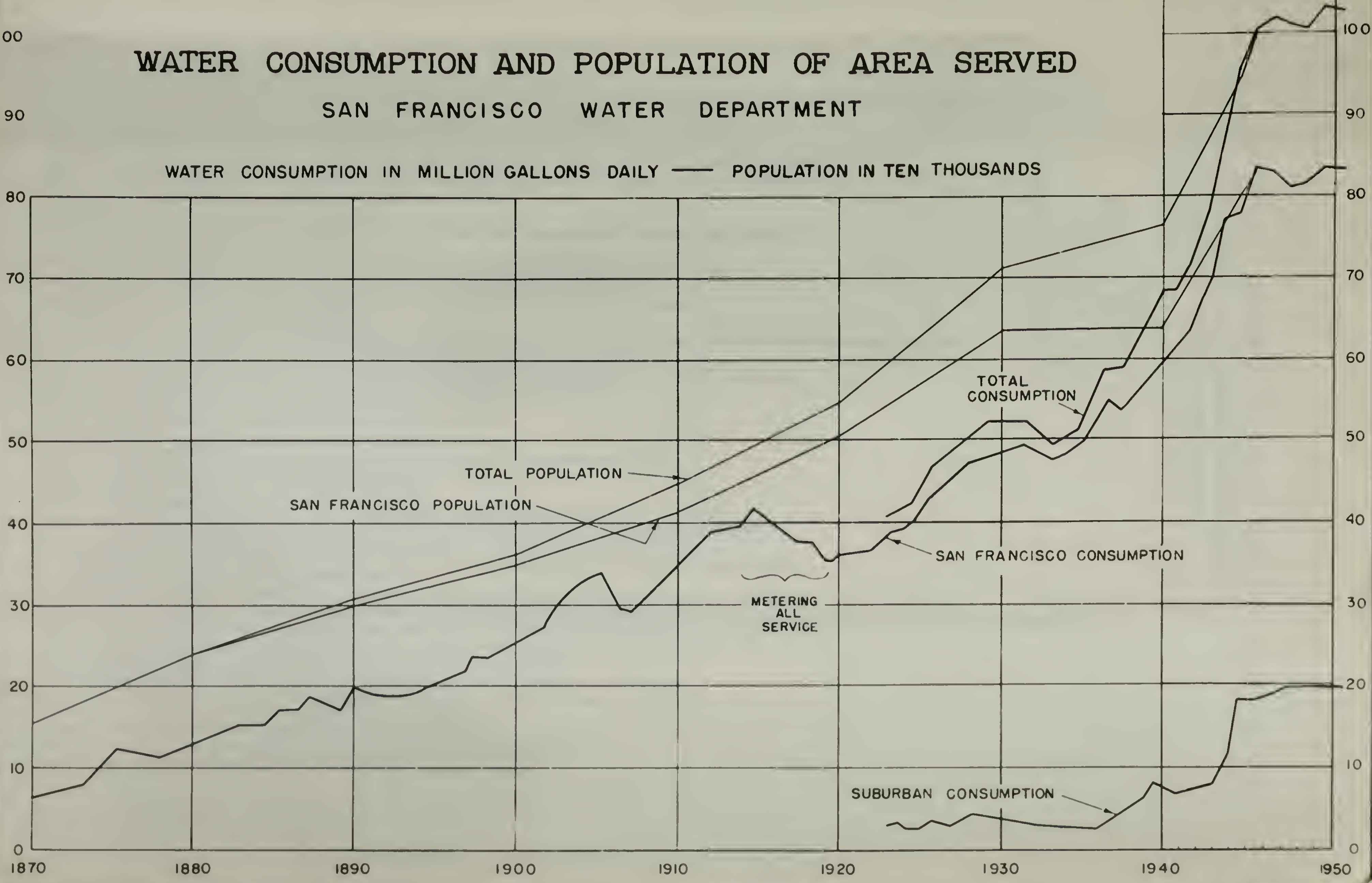
Lake Merced lands, including the lake, were transferred to the jurisdiction of the Park and Recreation Commission on January 30, 1950 for such recreational use as will not impair the lake water for emergency water supply purposes.

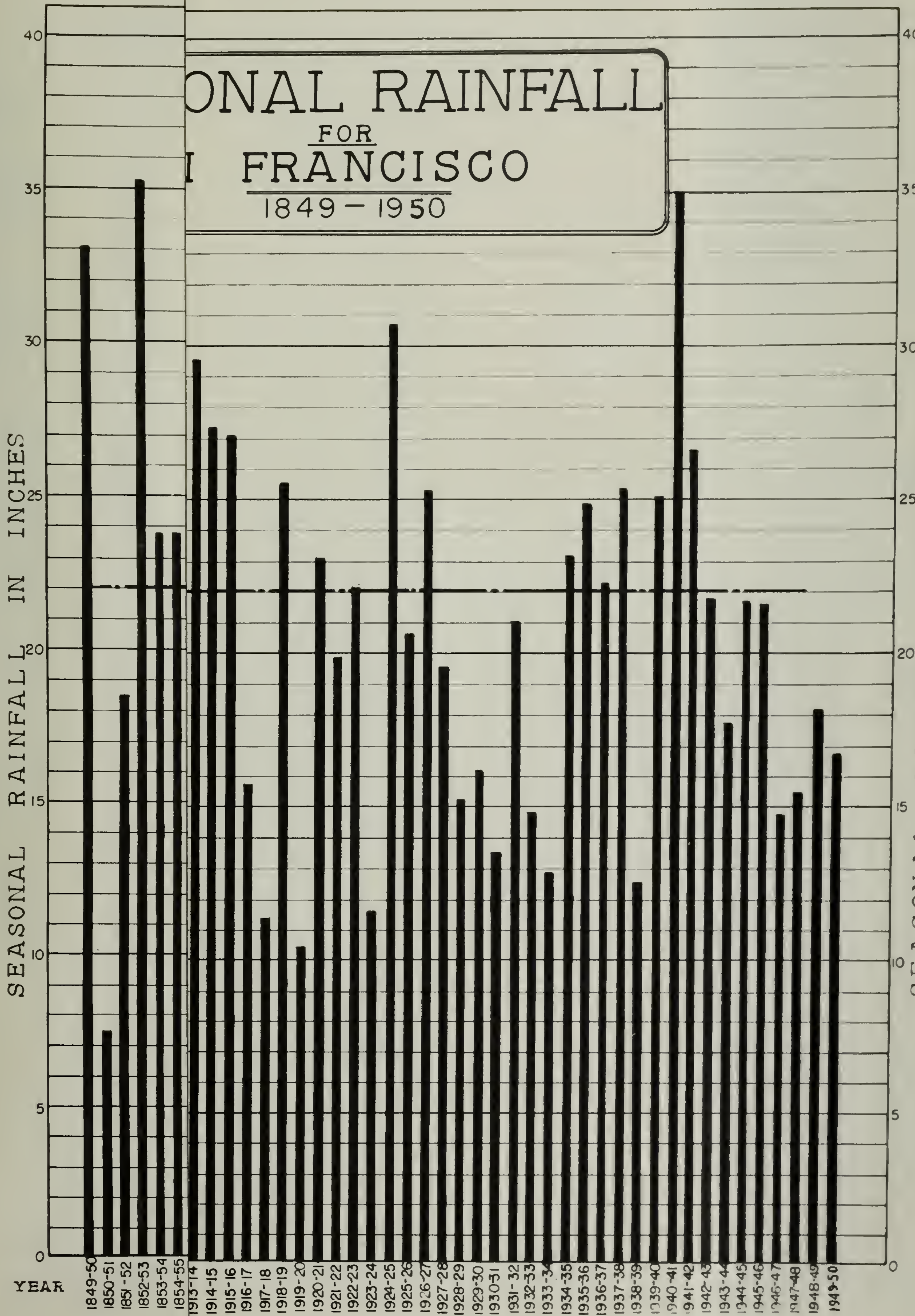
This foreward would not be complete without expressing a sincere appreciation to our personnel for their loyalty and cooperative efforts in maintaining and improving the efficiency of the department.

WATER CONSUMPTION AND POPULATION OF AREA SERVED

SAN FRANCISCO WATER DEPARTMENT

WATER CONSUMPTION IN MILLION GALLONS DAILY —— POPULATION IN TEN THOUSANDS

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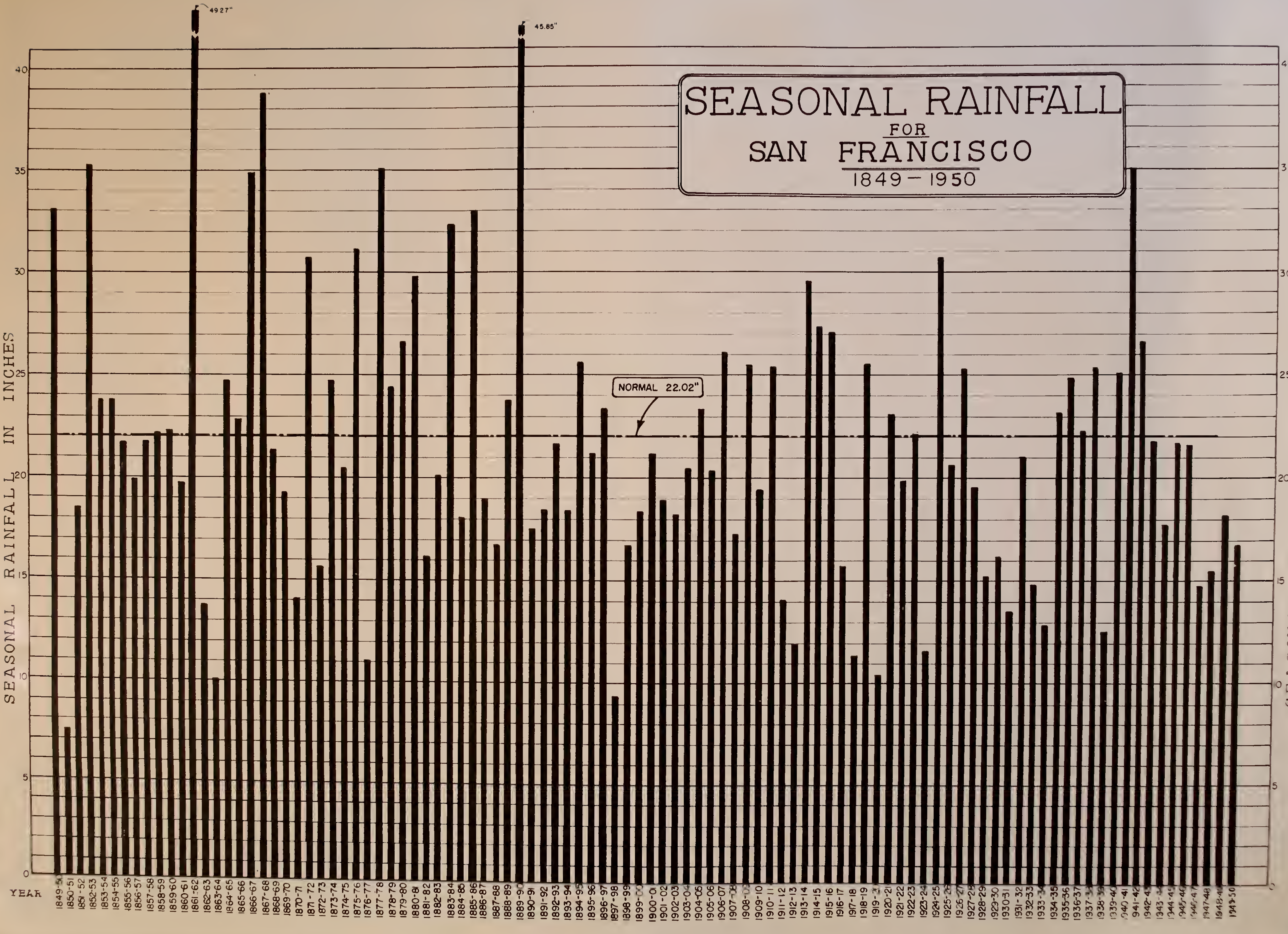
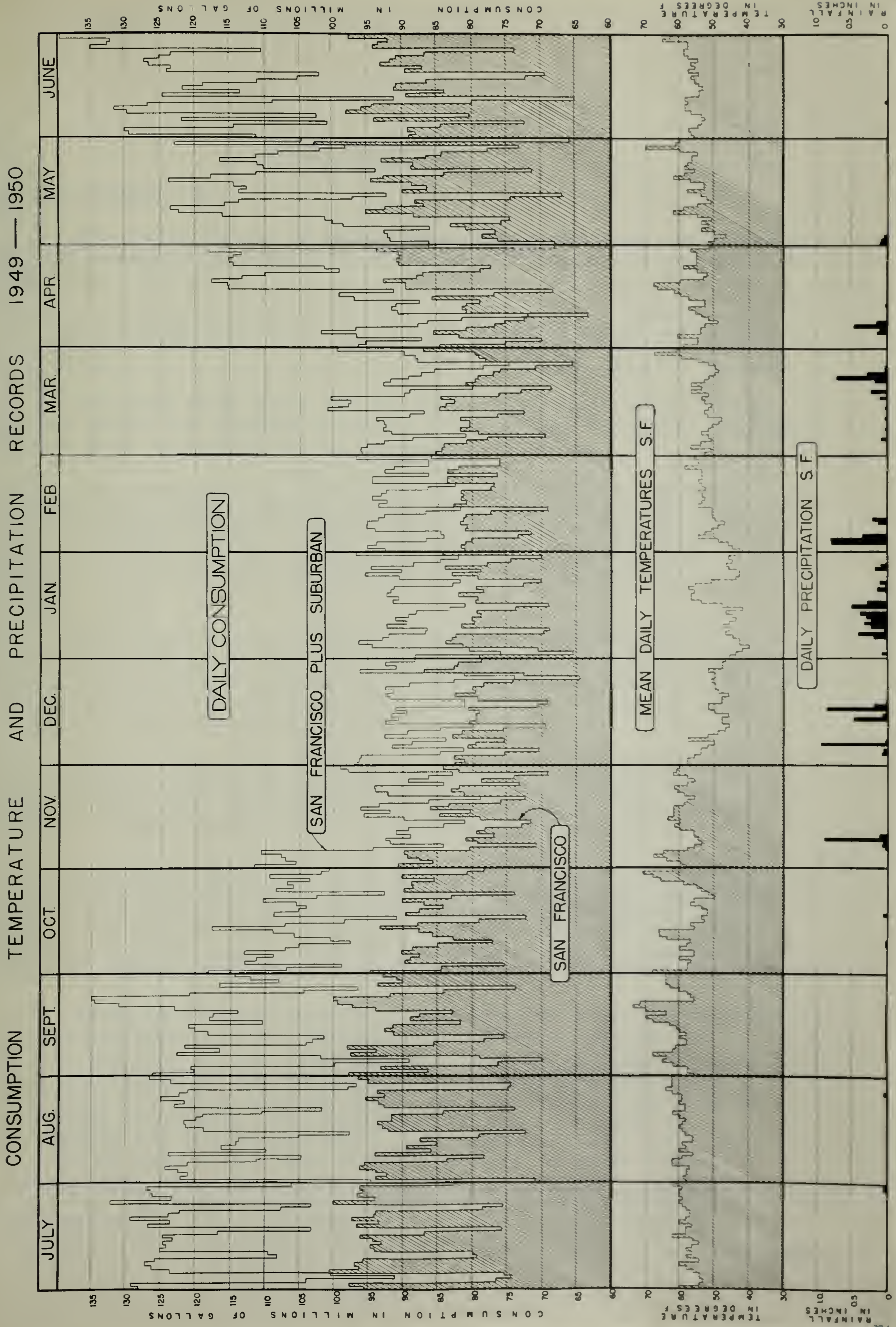


SEASONAL RAINFALL FOR SAN FRANCISCO 1849 – 1950



CONSUMPTION TEMPERATURE AND PRECIPITATION RECORDS 1949 —— 1950

WATER PRODUCTION

GENERAL OPERATIONS:

The total amount of water used during the year, amounted to 37,594 million gallons. This water was supplied from the following sources:

Local Production	16,809 million gallons
Hetch Hetchy sources	20,785 million gallons
Total	37,594 million gallons

Delivery from Hetch Hetchy sources averaged 56.9 million gallons daily and maximum possible delivery was continued throughout the year excepting during necessary shutdowns.

Approximately 96.8 per cent of the Hetch Hetchy water delivery was brought across the bay, the remainder being diverted into the Alameda System. The total delivery from Hetch Hetchy since completion of the aqueduct on October 18, 1934, now amounts to 213,949 million gallons or an average of 36.6 million gallons daily.

The draft on water resources to meet consumption requirements for the year averaged 102.7 million gallons daily a decrease of 0.5 million gallons daily under the preceding year. Consumptio in San Francisco was 83.1 million gallons per day and suburban consumption was 19.6 million gallons per day.

The 24-hour peak consumption for the entire system was 139.1 million gallons, occurring on June 29, 1950 and the month of June 1950 had the highest daily average of any month during the year averaging 120.7 million gallons daily.

All water delivered to San Francisco was, as heretofore, supplied entirely from San Andres and Crystal Springs reservoirs in San Mateo County. These reservoirs were replenished from limited run-off, by water drawn from Calaveras Reservoir in Alameda and Santa Clara counties and from the Hetch Hetchy system in the Sierra Nevada Mountains.

Water deliveries outside of San Francisco are designated as suburban consumption. Practically all water deliveries outside the City of San Francisco are made to vendors who take large quantities at the department's transmission mains and distribute the water through their own distribution systems to individual consumers. The department's water is used by practically all cities and towns in San Mateo County and by the City of Palo Alto. The City of Hayward, Alameda County, started using the department's water on November 27, 1949 to supplement their own supply. Distribution systems in these communities are owned by individual cities, public utilities companies, water districts or private individuals. Other relative-

ly small deliveries are also made from the Department's transmission mains in the southerly area of Alameda County.

RAINFALL, CATCHMENT AND STORAGE:

Rainfall in the Calaveras reservoir water shed was 71 per cent of normal, or 25 per cent higher than the previous year's rainfall. On July 1, 1949 Calaveras reservoir was at gauge height 76' 5½" and receded to a low of 16' 1¼" on January 10, 1950. The seasonal rains raised the reservoir water level to a gauge height of 86'9¼" on April 26, 1950 the highest of the fiscal year. By July 1, 1950, the water level had lowered to 79'6¼".

Rainfall on the Peninsula water sheds was approximately 83 per cent of normal, but 8 per cent higher than the previous year. Crystal Springs reservoir on July 1, 1949 was at a gauge height of 102'0¾" dropping to 85'2½" on November 1, 1949. The highest gauge reading, 104'2½" occurred on March 2, 1950. On June 30, 1950 the water level was at gauge height 92'0¼". Seasonal rainfall at the San Andres reservoir amounted to 27.79", or 74 per cent of normal. At the Pilarcitos reservoir, seasonal rainfall amounted to 39.38 or 87 per cent of normal. The Pilarcitos watershed area produced 1,088 million gallons during the past year.

The seasonal gain in storage, from a low of 20,552 million gallons on January 7, 1950 to a maximum of 33,483 million gallons on April 17, 1950 amounted to 13,031 million gallons. Surface storage in City, peninsula and Calaveras reservoirs on June 30, 1950, was 28,615.2 million gallons as compared to 30,354.0 million gallons at the end of the preceding year.

Well No. 01, in the Pleasanton Valley, was operated the full year to supply the Hearst Ranch with water.

TRANSMISSION:

Water consumption in the City of San Francisco required delivery of a daily average of 83.1 million gallons into the City distribution system. Of this amount, an average of 35.5 million gallons daily was delivered through the 60 inch and 44 Crystal Springs pipelines; 32.9 million gallons daily through the San Andres 54 inch pipe, known as San Andres pipeline No. 2; 7.0 million gallons daily through the College Hill pipe and 7.8 million gallons daily through the Baden-Merced branch pipeline.

Suburban consumption, averaging 19.6 million gallons daily, was supplied directly from the several transmission and supply lines at various points in Alameda, Santa Clara and San Mateo counties.

An average of 34.6 million gallons daily was pumped from Crystal Springs reservoir into the San Andres reservoir through the Crystal Springs aqueduct and an average of 8.3 million gallons daily was pumped by Alemany pumps into the higher levels of San Francisco.

The two bay crossing pipelines carried an average of 84.9 million gallons daily across San Francisco Bay. Of this amount, an average of 74.4 million gallons daily was delivered into Crystal Springs reservoir and the remaining 10.5 million gallons per day was delivered to consumers in the lower peninsula area. Of the total amount of 84.9 million gallons per day, Hetch Hetchy supplied 56.9 million gallons daily and the Alameda sources, 28.0 million gallons daily.

RESERVOIRS:

On July 1, 1949, the storage in Calaveras reservoir was 7,296 million gallons or 23 per cent of its capacity. This storage dropped to 318 million gallons on January 9, 1950 and then rose to a high of 9,747 million gallons on April 26,1950. At the end of the fiscal year the storage was 8,004 million gallons, or 708 million gallons more than at the beginning of the fiscal year.

Storage in Crystal Springs reservoir dropped gradually from 14,263 million gallons on July 1, 1949 to 10,533 million gallons on October 29, 1949. The water storage increased to 15,014 million gallons on March 1, 1950 then dropped to 11,574 million gallons on June 30, 1950 or 51 per cent of the reservoir capacity.

San Andres reservoir storage was held between 5,561 million gallons, on January 7, 1950 and 6,148 million gallons on September 22, 1949 during the year; amounting to 90 per cent and 99 per cent respectively of the reservoir's capacity. This high level was maintained by operating Alemany pumps and pumping from Crystal Springs reservoir throughout the year.

On July 1, 1949, the storage in Pilarcitos reservoir was 645 million gallons. The minimum storage, occurring on December 6, 1949 was 497 million gallons. The maximum storage was 858 million gallons and was reached on May 4, 1950. Storage at the end of the fiscal year was 759 million gallons, or 74.5 per cent of the reservoir's capacity.

During the year Pilarcitos reservoir supplied 972 million gallons to San Andres reservoir.

PUMP OPERATIONS:

The pumps of Irvington pumping station were started on January 20, 1950 and continued operating throughout the remainder

of the year. This station pumped into the Bay Division pipelines, during the past year, a total of 1819.4 million gallons of water supplied from Sunol filter galleries. No water was pumped from Pleasanton Wells into the Pleasanton pipelines for conveyance to Sunol.

In order to maintain high water level in San Andres reservoir it was necessary to operate the Crystal Springs - San Andres pumps throughout the year, except for six weeks during the rainy season. A total of 12,645 million gallons was pumped from Crystal Springs to San Andres reservoir making a daily average pumpage of 34.6 million gallons. During this year two pumps were operated for 10½ months and the third pump for four months.

Baden pumping station was not operated during the year but the operating units were maintained in a condition of readiness.

The Alemany pumping station was operated during the entire year for one shift a day. A total of 3,045 million gallons was pumped from the University Mound reservoir into the College Hill and Sunset systems, which are normally supplied from San Andres reservoir.

PIPE LINES:

All water brought through the various transmission lines was treated with chlorine.

The Sunol pipeline from the Alameda Creek siphon to the town of Sunol, delivered a total of 401.6 million gallons of water during the year. Of this total, 378.4 million gallons were used for irrigation and the balance of 23.2 million gallons were used for the Sunol domestic supply.

From January 20 to July 1, 1950, the Niles-Irvington pipeline was used to carry water developed at Sunol filter galleries to the Irvington pumping station from where the water was boosted into the Hetch Hetchy lines. A total of 1,819.4 million gallons was pumped into the Hetch Hetchy pipelines from the Niles-Irvington pipelines.

On the west side of the bay the section of the Alameda transmission line, between Burlingame and San Carlos, continued to deliver Crystal Springs water to local consumers. No leaks developed in this line during this fiscal year. The portion of the Alameda pipeline from Dumbarton to Belmont which supplied the former Belmont pumping station until the year 1936, has not been used since that year and has now been officially abandoned.

During the fiscal year the two Bay Division pipelines carried a total of 31,000 million gallons across the bay, of

which 27,147 million gallons were delivered through the Pulgas Temple to Crystal Springs reservoir.

The Palo Alto pipeline delivered a total of 2,023 million gallons to various consumers along the line south of Redwood City, for an average of 5.54 million gallons daily. The maximum weeks' demand on this line averaged 9.57 million gallons daily as compared to 9.06 million gallons daily for the maximum weeks' demand during the preceding year.

Both of the Crystal Springs pipelines were in service throughout the year. The 44-inch line carried an average of 13.3 million gallons per day and the 60-inch line carried an average of 38.0 million gallons per day from the reservoir. Of this total of 51.3 million gallons daily, 27.2 million gallons daily was delivered to, and used in, the University Mound distribution system; 8.3 million gallons per day was delivered to University Mound reservoir, from where it was pumped through the Cross-Town pipe line to higher level distribution systems in San Francisco; 7.6 million gallons per day was diverted from the 60-inch Crystal Springs pipe into the Baden Merced branch pipeline, through which it was delivered to Merced Manor reservoir and the balance of 8.2 million gallons daily was delivered to the distribution systems of the several Peninsula communities, as far south as San Carlos.

The College Hill distribution district consumption averaged 8.0 million gallons per day. Of this amount, 7.0 million gallons daily was delivered through the 30 inch College Hill pipeline and the balance of 1.0 million gallons per day came from Alemany pumps via the Cross Town pipeline. The 7.0 million gallons daily supply through the College Hill pipeline came from the San Andres reservoir via the 44 inch San Andres pipeline.

The Baden-Merced branch pipeline carried an average of 7.8 million gallons per day, 0.2 million gallons per day of which was supplied from San Andres reservoir via the 44 inch San Andres pipeline and the balance of 7.6 million gallons per day was supplied from the 60 inch Crystal Springs pipeline. San Andres water was delivered from January 14, 1950 to March 1,1950, and Crystal Springs water for the balance of the year.

The 54 inch San Andres pipeline carried a total of 11,923 million gallons of water, or an average of 32.8 million gallons per day, from San Andres reservoir to Sunset and the other high San Francisco pressure districts during the year.

In this fiscal year there was only one significant leak on the College Hill pipeline.

AQUEDUCTS:

The Sunol aqueduct carried water throughout the entire year from the Sunol filter galleries to Niles reservoir. From

January 20 to July 1, 1950 water was carried through the Niles-Irvington pipeline to Irvington pumping station, where it was then pumped into the Bay Division pipelines for delivery to consumers on the west side of San Francisco Bay. During the balance of the year the Sunol aqueduct water was delivered to the Alameda County Water District.

The Crystal Springs aqueduct was in operation 10½ months of the year, carrying a total of 12 645 million gallons of water to San Andres reservoir from Crystal Springs reservoir.

The Pilarcitos aqueduct to San Andres reservoir was in service during the entire fiscal year and carried an average of 2.7 million gallons daily to San Andres reservoir. This aqueduct has a capacity of 40 million gallons per day.

ALAMEDA DIVISION, GENERAL:

Calaveras reservoir was given three copper sulphate treatments for algae control.

The road to Calaveras Aerator was rerouted to provide an improved alignment.

Niles reservoir was cleaned and inspected.

Several leaks on Hetch Hetchy pipeline No. 1, due to electrolytic action were repaired.

Irvington Pumping Station started operating January 20 and continued operating throughout the remainder of the fiscal year.

Well "O1" in the Pleasanton Valley was operated the full year to supply the Hearst Ranch with water because of low ground water level in the valley and the City's obligation to supply water during periods of low water level.

Deposits were sluiced from the Alameda Creek Diversion Dam during the flood period.

A gravel loading ramp was installed in Alameda Creek for the loading of gravel for road repairs.

Roads were graded and gravel road surfaces repaired.

Damage to Sunol filtration dams, caused by floods, were repaired.

A sprinkling system was installed in the Sunol Headquarters garden to facilitate watering of lawn areas.

An 8" connection with a 8" compound meter were made off the former 30" Corral Hollow pipeline to permit use for irrigation purposes.

A 4" connection was made to Hetch Hetchy pipeline #1 and #2 to provide water supply to consumers of the Alameda Water District.

Stream gauging and general maintenance on the Alameda and Costa Creeks were accomplished.

Fire guarding, fence repairing, brush cutting and general maintenance were carried on throughout the year.

PENINSULA DIVISION, GENERAL:

The Baden Pumping Station did not operate during the year, but was maintained ready for use upon short notice.

Booster pumps at Crystal Springs Pumping Station were not operated during the year as reservoir levels were of sufficient height so that lines from the lake were able to deliver the demand by gravity flow. San Andres pumps were closed down for six weeks during the rainy season.

Crystal Springs, San Andres and Pilarcitos reservoir waters required no unusual treatment during the year. One copper sulphate treatment for algae control was given to Crystal Springs reservoir. Two treatments were given to San Andres and Pilarcitos reservoirs; once in the fall and once in the spring.

Repairs were made to the North San Andres keeper's cottage and the exterior of the building was painted. The exteriors of two ranger's cottages at Crystal Springs were painted. Surfaces of Pulgas Water Temple were cleaned and dampproofed. The interior of the Assistant Superintendent's cottage was completely repaired and painted.

A concrete cesspool in the Stone Dam area was relocated preparatory to supplying the town of Half Moon Bay with water from Stone Dam Lake.

The Fifield Bridge on Pilarcitos road was rebuilt and all roads in the area were regraded.

One serious leak occurred in the 30" College Hill section south of the county line and north of Duck Road, as a result of a blowout. Repairs required the replacement of 20 feet of pipe.

One leak occurred in the 54" San Andres pipeline No. 2 near Brentwood Subdivision in South San Francisco. Necessary repairs to this pipeline, following damage from electrolytic action, have been decreasing in number during the past four years.

Repairs were made to the regulating valves between San Andres pipelines No.1 and No. 3. Decayed timbers were replaced in the trestles, supporting San Andres pipeline No. 1, across gulches. No leaks occurred in the 30" line from Baden to the County line.

No trouble has occurred in the 36" Alameda pipeline, that was cement lined last year between former Belmont Pump Station and San Mateo, except that repair was made to the pipe upon being damaged from construction work in the vicinity. The part of Alameda pipeline from Dumbarton to Belmont, that supplied Belmont pumps with water until 1937 has been officially abandoned.

The trestle across San Bruno marsh, that carries the 44" No. 1 Crystal Springs pipeline, was overhauled and a number of trusses were rebuilt. A 254 foot section of this pipeline, from San Bruno trestle through the tunnel at South San Francisco, was replaced due to the deteriorated condition at the bottom of the pipe which caused excessive leakage. A blowoff was installed in this pipeline at Occidental Avenue to permit drawing water from a section of the line.

During a period of low flow in the 76" Bay Division pipeline No. 2, the section of line between the Caisson and Redwood Valve House was closed down and all leaking pipe expansion joints on the Bay Bridge were repacked.

At a time when Pulgas tunnel was closed off, an examination disclosed that the concrete apron where the water spills from the canal into the creek was undermined. Repairs were made by filling in with large rock and concrete.

Several leaks occurred in the 60" Bay Division pipeline No. 1, west of Redwood City, where the pipe had become badly pitted from electrolytic action.

ALAMEDA COUNTY WATER DISTRICT:

During the year, a total of 220,670,000 gallons of water was released to the Alameda County Water District for replenishment to the underground gravel of the Niles Cone area. Under the terms of the 1920 award, 975,861,000 gallons were due the district during the year. There thus resulted, under the terms of the 1936 agreement, a decrease of 755,191,000 gallons in our "advance release" to the district. The total of computed "advance release" to June 30, 1950 amounts to 21,864,978,000 gallons.

PLEASANTON TOWNSHIP COUNTY WATER DISTRICT:

The Sheriff of Alameda County continued to use the U.S. Navy's Camp Shoemaker as a jail farm during the fiscal year.

Water supplied to this institution, as well as to the former Naval housing project, Komandorski Village, was taken from the Navy's 100 acre and 4.105 acre tracts within the Pleasanton Water District. Subsequent to January 1950, all diversions for Camp Parks consumption were made from the 4.105 acre tract on account of the leaky condition of the transmission line leading from the 100 acre tract. Except for artesian flow above ground surfaces, between 1940 and 1944, no water was taken from the Water Department's Pleasanton wells for export subsequent to 1939 until February, 1948. Since this latter date and April 30, 1949 the Department took an average of 9.9 million gallons per day for export to San Francisco. On April 30, 1949 San Francisco discontinued exporting Pleasanton well water.

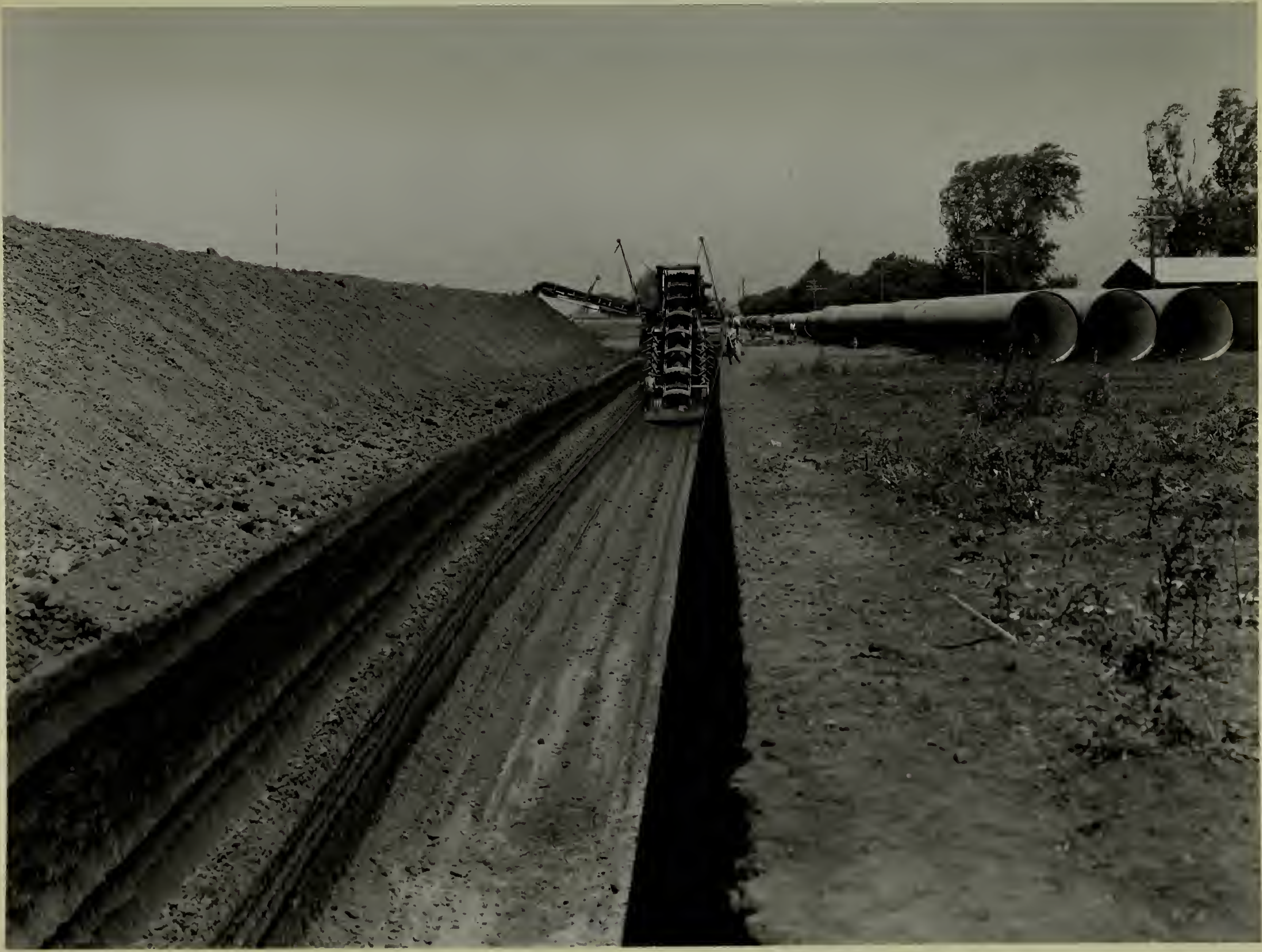
Withdrawals for the above enumerated purposes together with those for domestic and irrigation use within the District gradually lowered the water table over a period of years throughout the entire Water District.

Due to the low water table elevation the obligation of the Water Department to furnish water to the Town of Pleasanton and to pay electric charges for pumping community and land owner's wells continued throughout the year. The town of Pleasanton continued, throughout the year, to obtain all its water supply from Water Department wells, located at Black Avenue and Santa Rita Road, and paid all resulting electric power bills which payments were later reimbursed by the Water Department, Throughout the year, the Department also reimbursed the District for electric power charges for pumping "Community Wells" and paid power bills rendered to land owners, except as otherwise provided in the "Pleasanton Township County Water District Agreement".

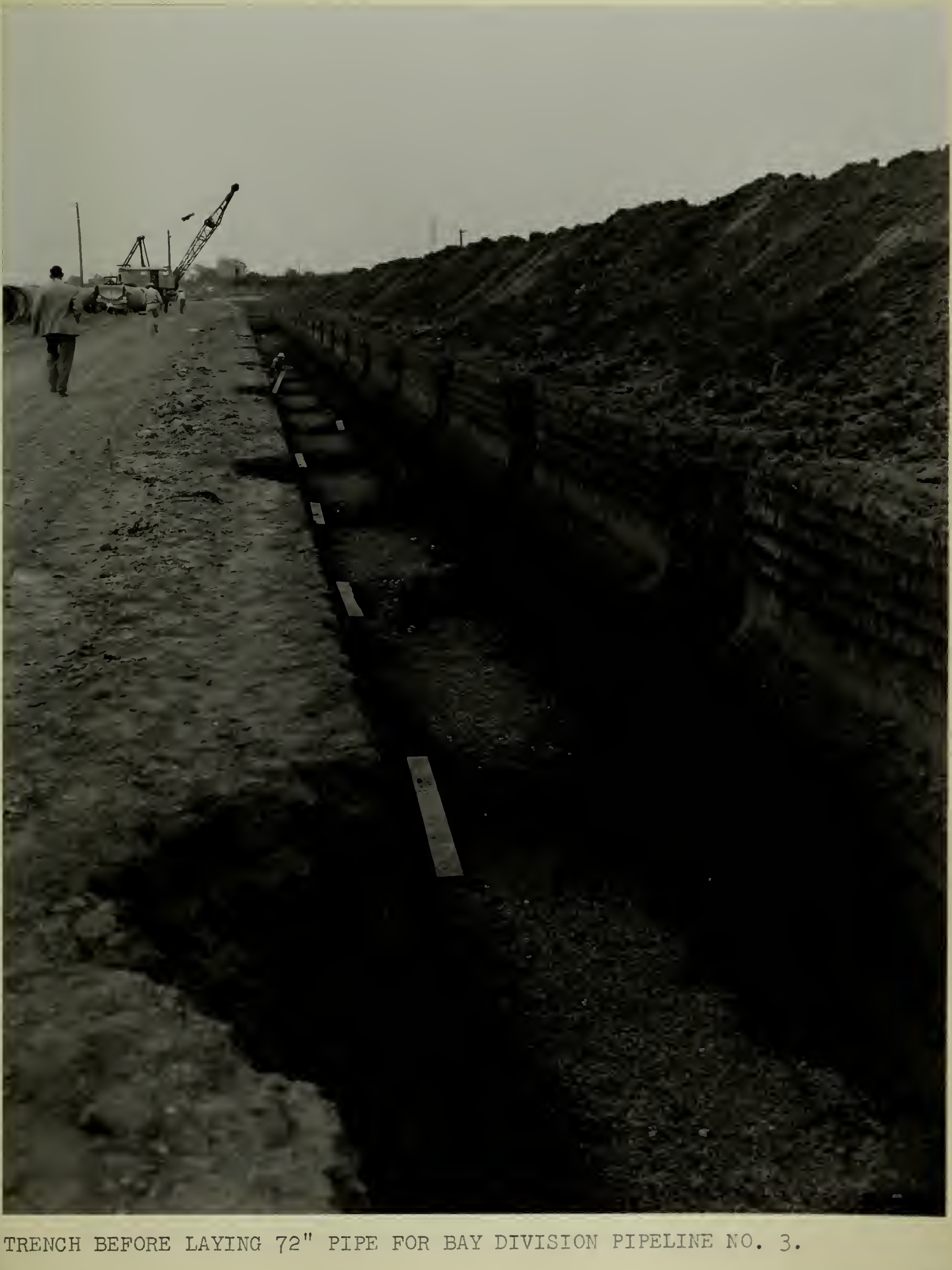
Although runoff into the Department's local storage reservoirs, during the 1949-50 season, was well below normal it still was of sufficient quantity to allow discontinuance of pumping from Pleasanton wells in May 1949. This served to retard recession of the water table, to defer, and it is hoped to eliminate the necessity of possible excessive expenditures in providing water supplies for land owners in conformity with the "Pleasanton Water District Agreement".

SUBURBAN METERS:

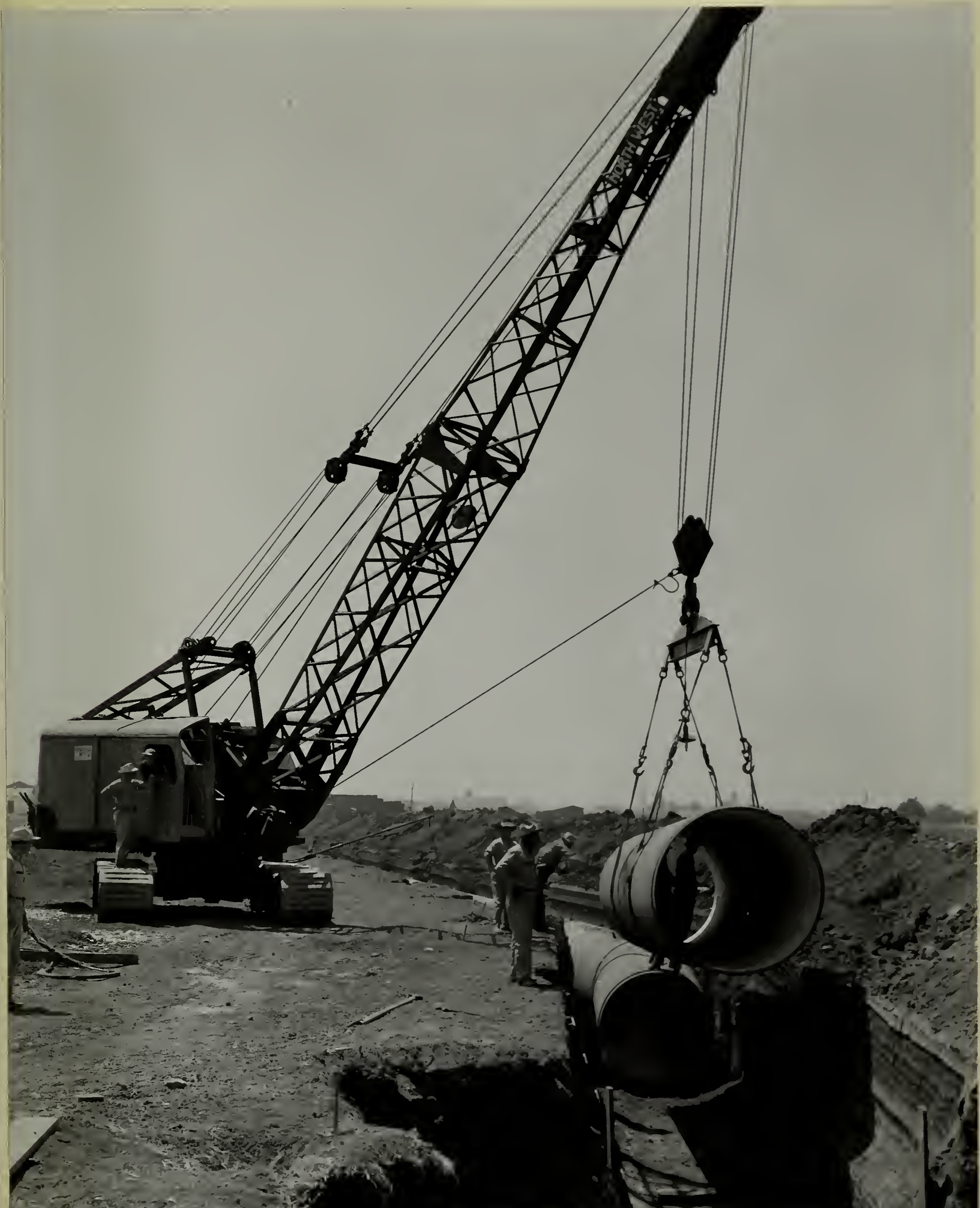
There were 55 new services installed during the year for suburban consumers. The total number of suburban meters at the close of the year was 1094 of which 1073 serviced 801 active consumers; an increase of 77 active consumers for the year.



TRENCHING OPERATION FOR 72" BAY DIVISION PIPELINE NO. 3.

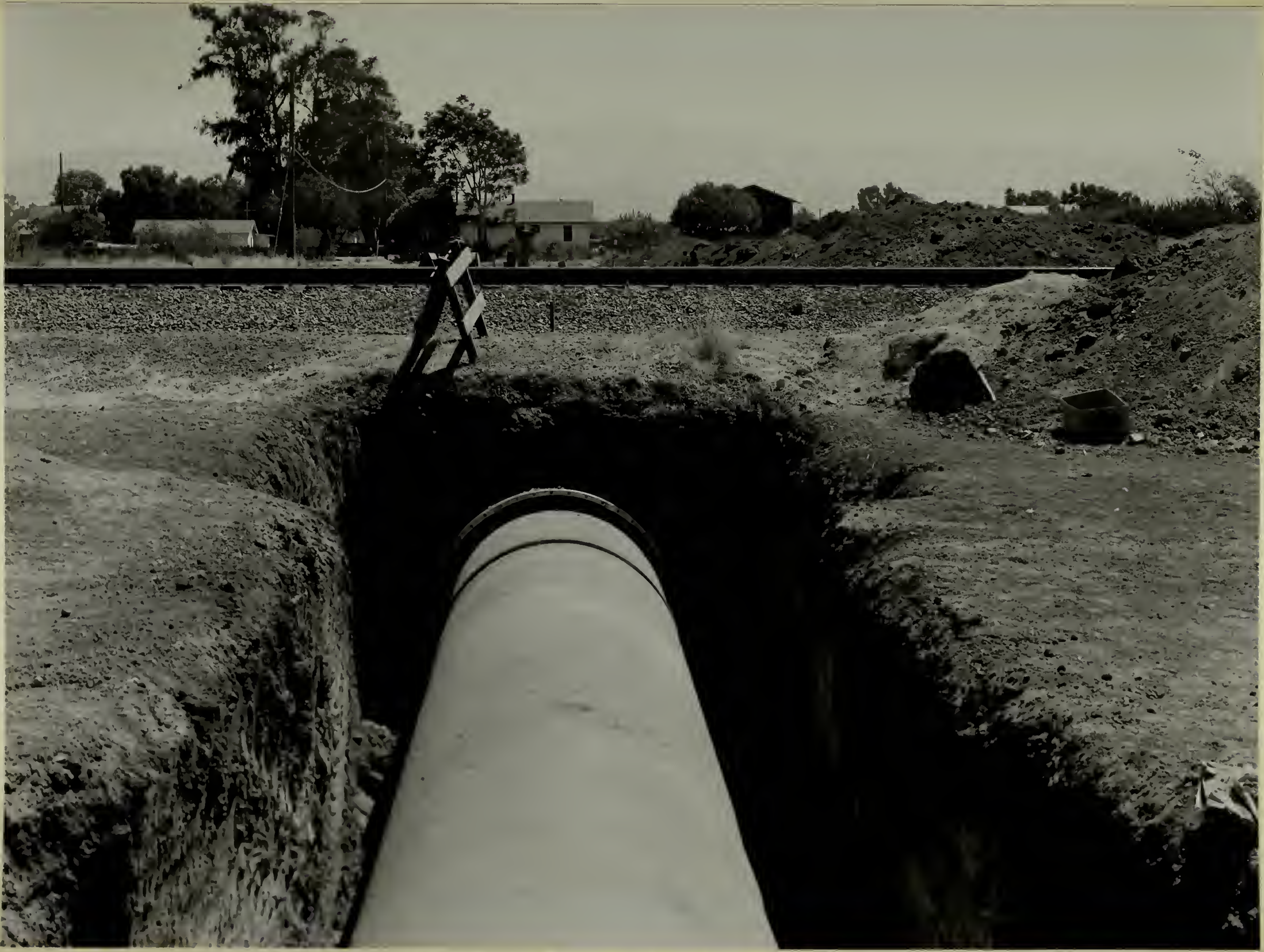


TRENCH BEFORE LAYING 72" PIPE FOR BAY DIVISION PIPELINE NO. 3.



LAYING SECTION OF 72" BAY DIVISION PIPELINE NO. 3.

72" PIPE IN TRENCH READY FOR TEST

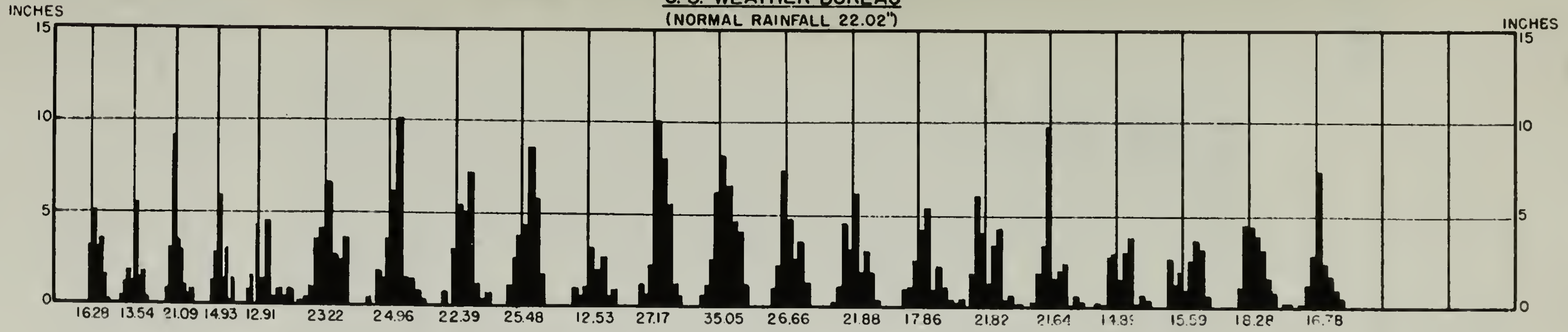


SECTION OF 72" BAY DIVISION PIPELINE PASSING UNDER RAILROAD TRACKS

SAN FRANCISCO RAINFALL IN INCHES

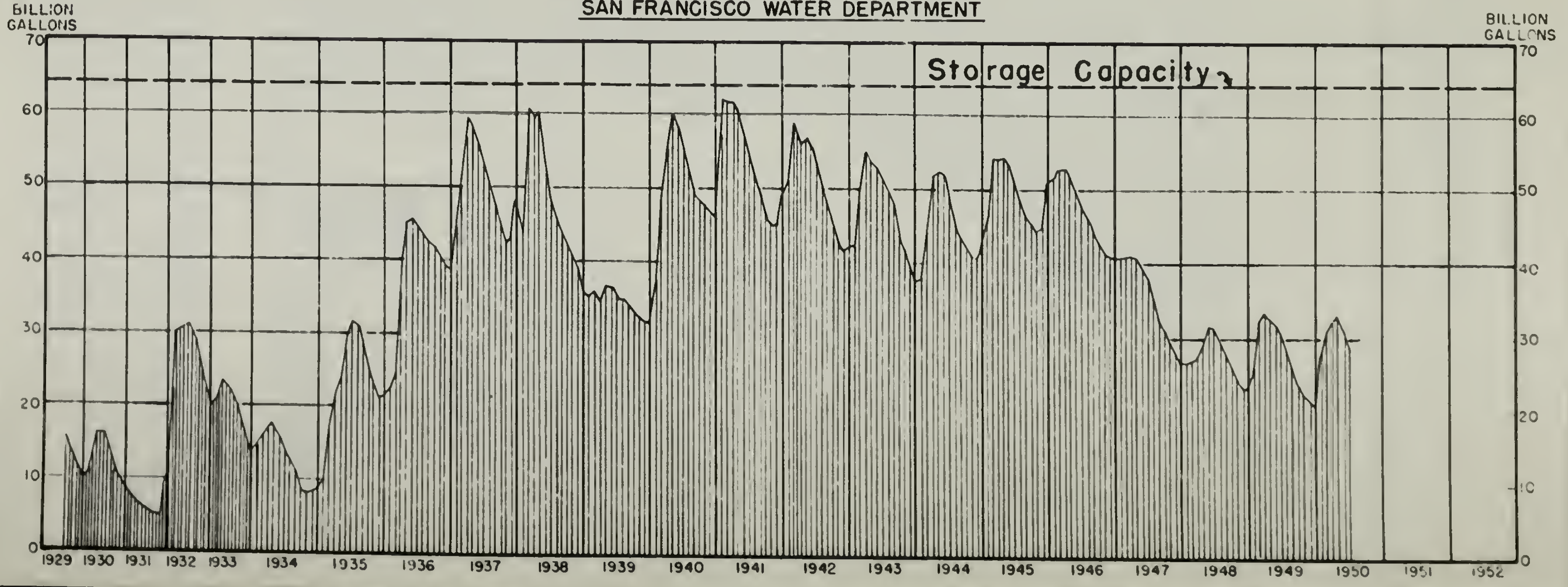
U. S. WEATHER BUREAU

(NORMAL RAINFALL 22.02")



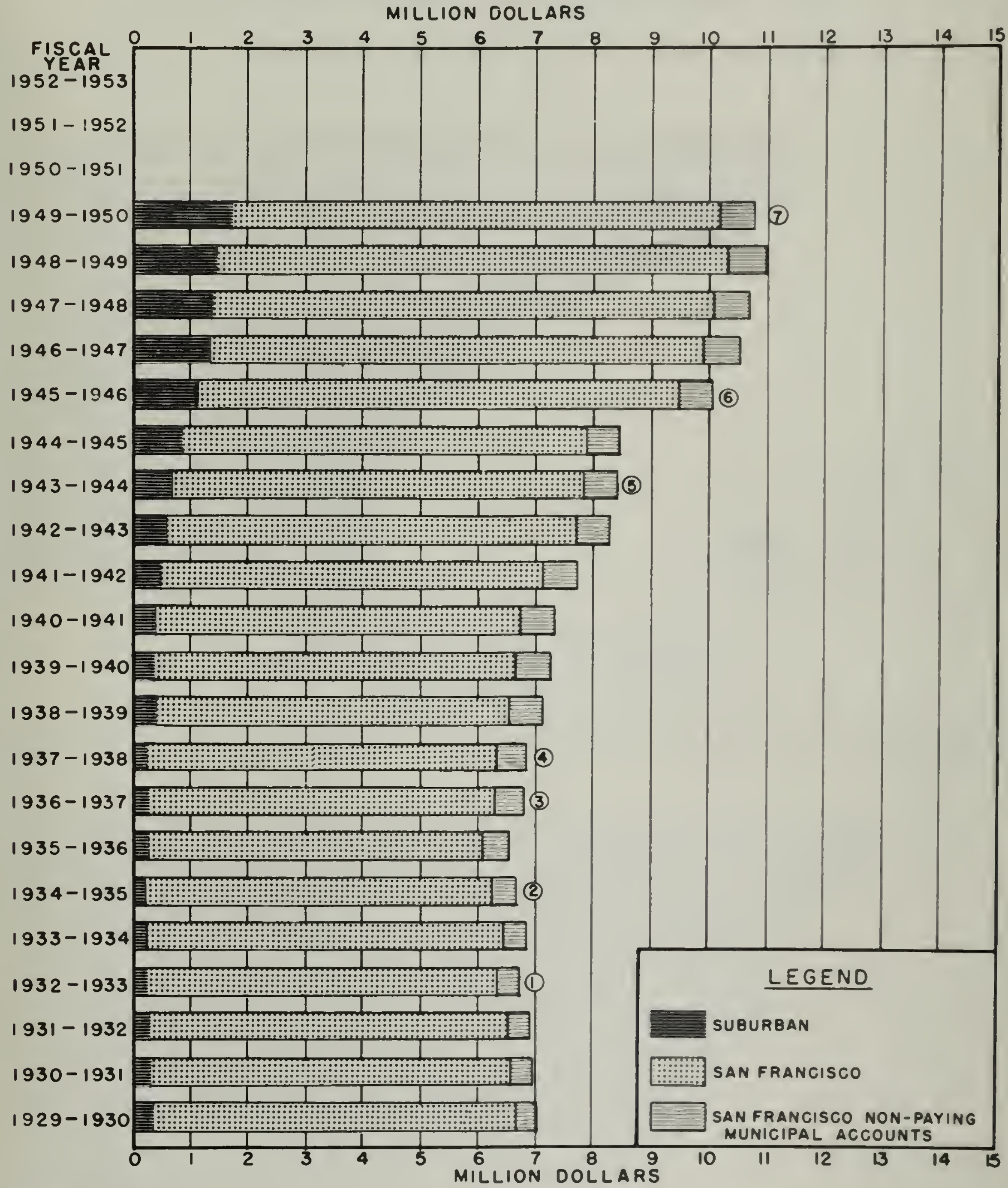
STORAGE IN BILLION GALLONS

SAN FRANCISCO WATER DEPARTMENT



SAN FRANCISCO WATER DEPARTMENT

WATER SALES

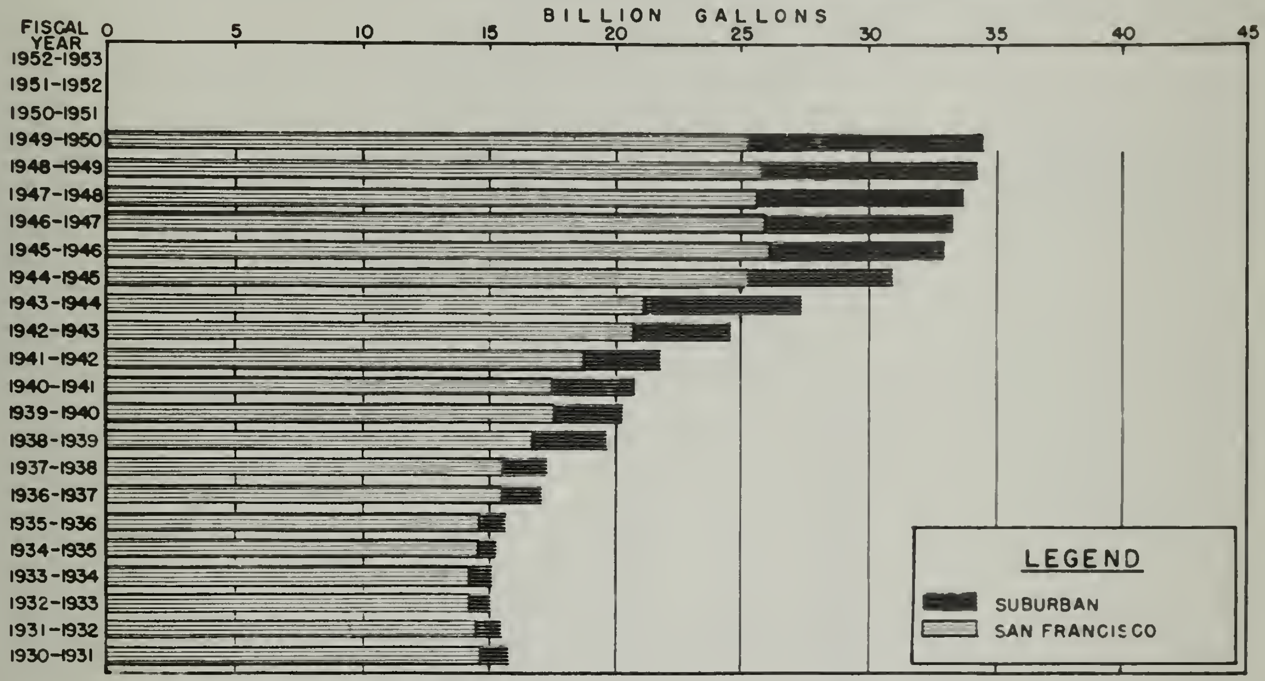


RATE CHANGES:—

① — OCT. 26, 1932 75% REDUCTION ON FIRE SPRINKLER SERVICE CHARGES.
② DEC. 1, 1934 10% REDUCTION ON ALL RATES EXCEPT HYDRANTS AND SPRINKLERS.
③ JAN. 1, 1937 7% & 48% REDUCTION ON INCREASED USAGE AT INDUSTRIAL & WHOLESALE RATES.
④ JAN. 1, 1938 7% & 48% REDUCTION APPLIED TO ALL " " " " " "
⑤ DEC. 1, 1943 15% REDUCTION TO ALL CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO.
⑥ SEPT. 1, 1945 PRECEDING 15% REDUCTION REMOVED FOR CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO. 15% INCREASE FOR SUBURBAN CONSUMERS.
⑦ JULY 1, 1949 INCREASE OF HALF-CENT PER 100 CU. FT.—SAN CARLOS & SAN MATEO.

SAN FRANCISCO WATER DEPARTMENT

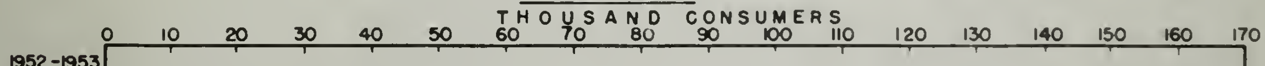
WATER DELIVERED AT CONSUMERS METERS

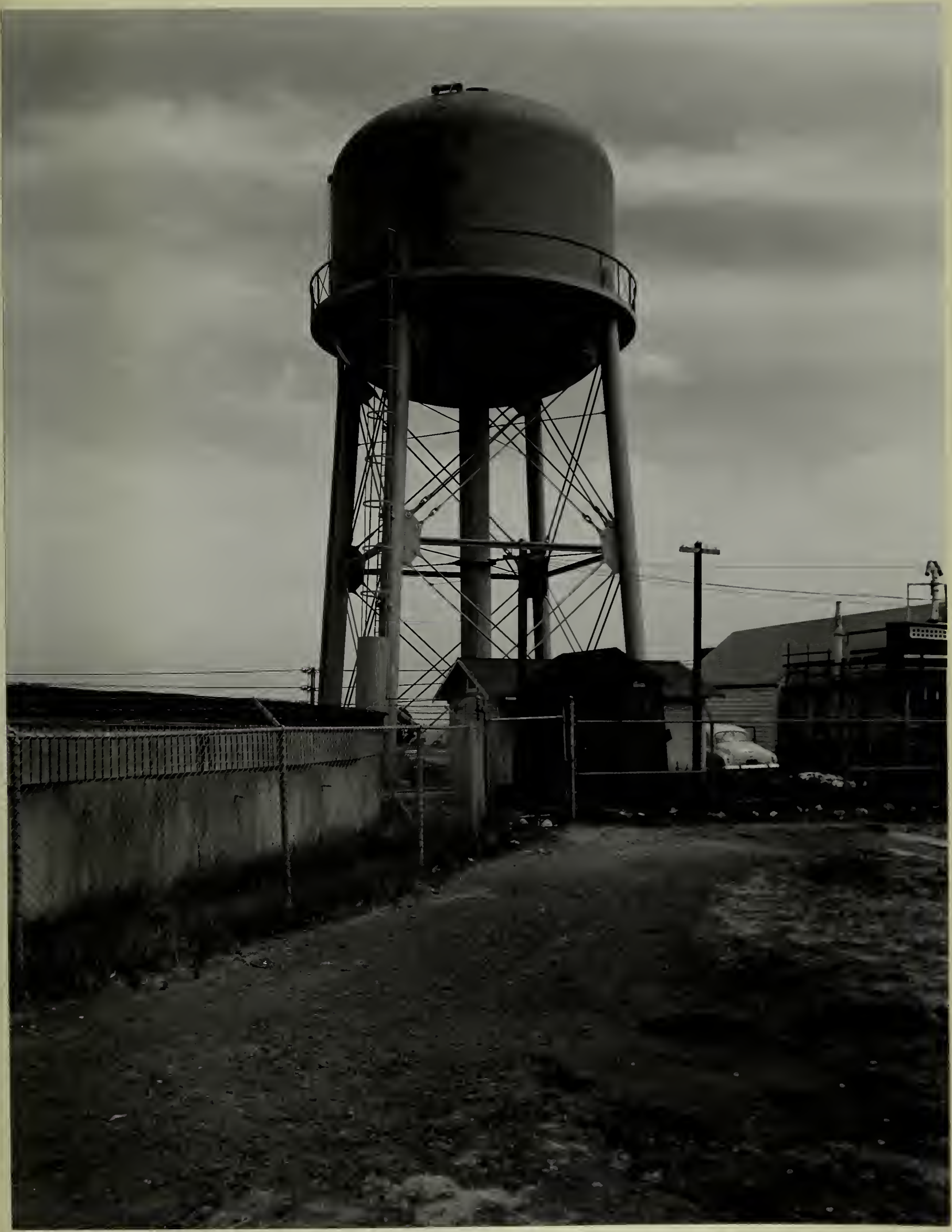


SAN FRANCISCO WATER DEPARTMENT

NUMBER OF ACTIVE CONSUMERS

AS OF JUNE 30





100,000 GALLON STEEL ELEVATED TANK
AT POTRERO HEIGHTS RESERVOIR

CITY DISTRIBUTION DIVISION

WATER CONSUMPTION:

The average daily consumption for the City and County of San Francisco was 83,120,216 gallons, a decrease of 177,603 gallons or 0.2 per cent under the previous year. The industrial area of the University Mound Reservoir District had a decrease in consumption amounting to 2,416,054 gallons during the year. Residential districts, except for Merced Manor and Forest Hill, had an increase in average daily consumption. Percentage of change for the residential districts, as compared with the previous year, amounted to: Merced Manor, 9.0 per cent decrease; Forest Hill, 12.0 per cent decrease; University Mound, 8.9 per cent decrease; Stanford Heights, 3.5 per cent increase; Sunset, 5.3 per cent increase; College Hill, 4.3 per cent increase.

The maximum daily consumption for the entire City during the year occurred on May 30, 1950 amounting to 102,574,000 gallons, while the day of minimum consumption occurred on April 9, 1950, and amounted to 63,249,000 gallons.

OPERATING CONDITIONS:

Increases in consumption in the residential areas continued to tax the capacity of many of the feeder mains, and as a result many complaints were received of "poor pressure" as well as "no water". These conditions became acute during the warm weather periods and can only be relieved by laying additional feeder mains to the affected districts

Inadequacy of water supply in the Wilde Avenue Reservoir District was relieved by laying of a 12" feeder main into the district. Before installing this feeder main it was necessary to augment the water supply by use of a portable gasoline engine-driven, 500 GPM centrifugal pump, which was used for a period of eight hours on five different occasions.

The water supply to Stanford Heights Reservoir District is in a critical condition that can only be relieved by prompt completion of Sutro Reservoir and the feeder mains to that reservoir. This district is supplied by two pumping units of the Central Pumping Station. The maximum capacity of one of these pumping units, operating alone, is about 10 million gallons per day, and the maximum output with both units operating together is 13.6 million gallons per day. Operating records at Central Pumping Station show that only during the winter months of November to April may station operation be confined to use of one pumping unit, and then only at maximum or close to maximum capacity. During the remainder of the time it was necessary to operate both pumping units simultaneously,

and at times close to absolute maximum operating capacity. Should a breakdown of either pumping unit occur during the peak demand of the warmer months, the Stanford Heights Reservoir District would be without water within a short period of time. The output of Central Pumps was augmented, as in the previous year, by the Francisco Pump to the limited extent of about 100 G.P.M.

Serious consideration should immediately be given toward financing the required additions and betterments in the City Distribution System as further delay will result in inability to provide adequate service.

TRANSMISSION MAINS:

The original 44" Crystal Springs transmission main, as well as the 30" College Hill transmission main continue to be in very poor condition; the carrying capacity of each being reduced about one half of their original capacities. These mains should be either reconditioned to the fullest practicable extent or replaced with new mains.

CITY RESERVOIRS:

Lombard Reservoir was given a thorough cleaning on August 5, 1949, through the use of twenty men for a period of about five hours. Cleaning was accomplished by use of four streams of high pressure water from a portable fire pump.

College Hill Reservoir was cleaned in November. Due to the unlined condition of this reservoir and the inability to take the reservoir out of service, the cleaning process was slow and tedious, requiring about two weeks to accomplish the work.

All reservoirs were in good condition on June 30,1950. No work was done on Sutro Reservoir. The excavation and embankments are the same as which completed some four years ago.

The water levels in University Mound and College Hill reservoirs are now read at Central Pumping Station by means of chrono-flow electric water-level indicators installed September 28, 1949.

The Potrero Heights wood tank was replaced on January 10, 1950 by an elevated steel tank having a capacity of 100,000 gallons.

LAKE MERCED:

No water was drawn from Lake Merced during the year. The recreation facilities, including fishing and boating concessions were transferred to the Park and Recreation Commission on January 30, 1950 after termination of C. M. Kay's lease for boathouse facilities.

PUMPING STATIONS:

All pumping plants operated without mishap throughout the year. Central Pumping Station is approaching its ultimate capacity and has no standby capacity at this time. Francisco Pump is still operating on automatic control. Lincoln Park and Lane Street pumps are now operating without standby, and are close to their maximum capacities. Since installation of the 12" feeder main in Wilde Avenue Reservoir district, the Olmstead Pump has been relieved of much of its load, and its operation is now back to normal. Twin Peaks Pumps are operating at their maximum capacity and are without standby capacity. However, the two small centrifugal pumping units now at the Bay Bridge pumping station are being transferred to the Twin Peaks Station to assure a better supply from this station.

During the past several years considerable trouble was encountered in the electric float switch control system for Forest Hills Pumps. This control circuit was abandoned on September 12, 1949 and replaced with a telephone wire circuit which will insure continuous control. The last of the Triplex type pumps at Forest Hill will be replaced shortly with an electric motor-driven centrifugal pump similar to the ones now installed. When this work is completed the output of the station will be increased by about 300 G.P.M. and will assure the Forest Hill district water for a few more years.

The Potrero Heights pump was replaced on April 6, 1950 with a new pump station located adjacent to the new elevated steel tank and consisting of two pumping units, each having a capacity of 300 G.P.M.

The balance of the pumping stations are being operated normally and without any unusual difficulty.

CITY PIPE SYSTEM:

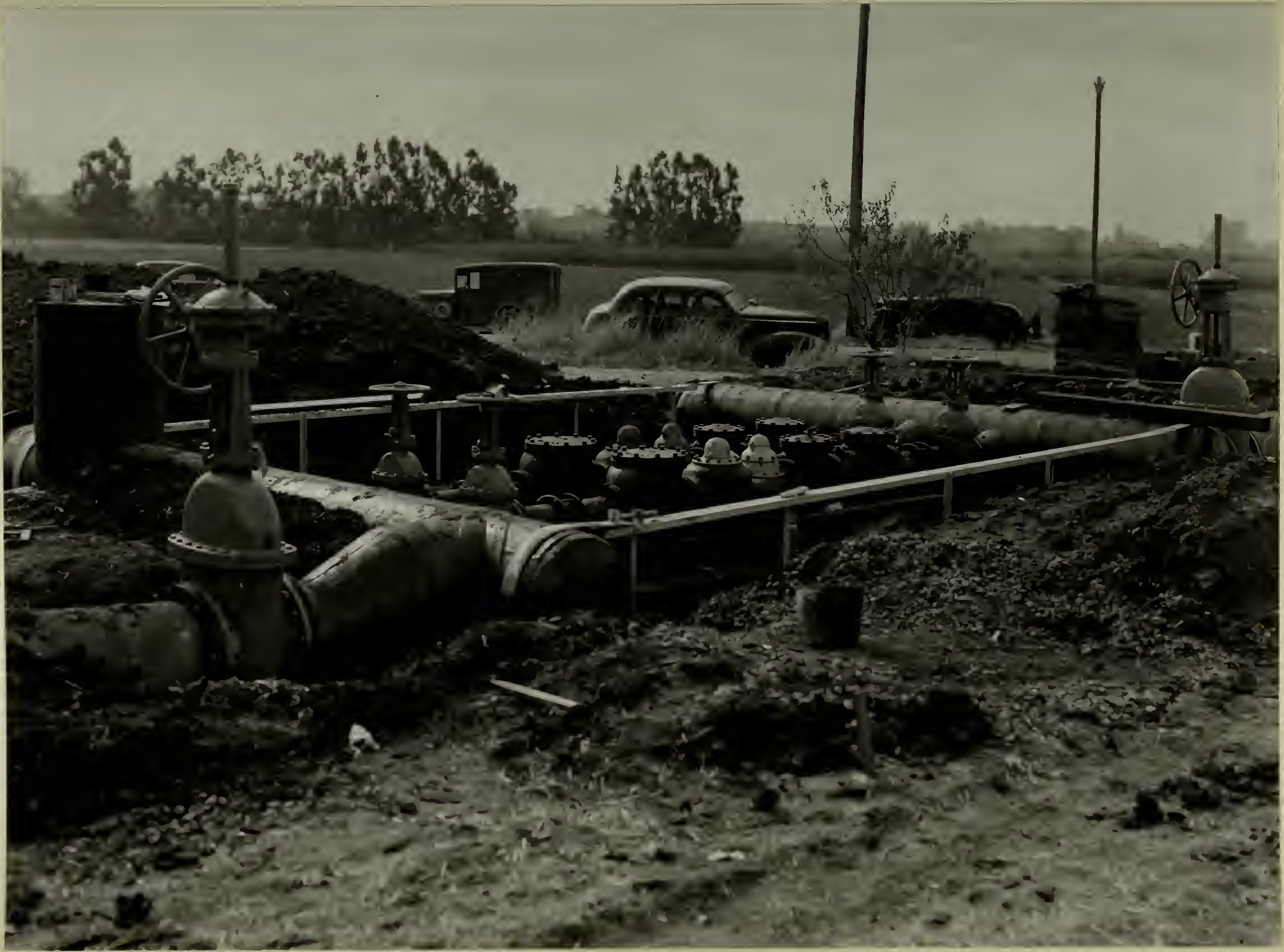
Several sections of 12" and 16" feeder main were laid during the year; the one of greatest importance being the 12" feeder main laid in the Wilde Avenue Reservoir District. Other normal routine extensions consisted in installations of 4", 6" and 8" mains. Pipe records, including the foregoing pipe installations are given in Table No. 21.

SERVICES AND METERS:

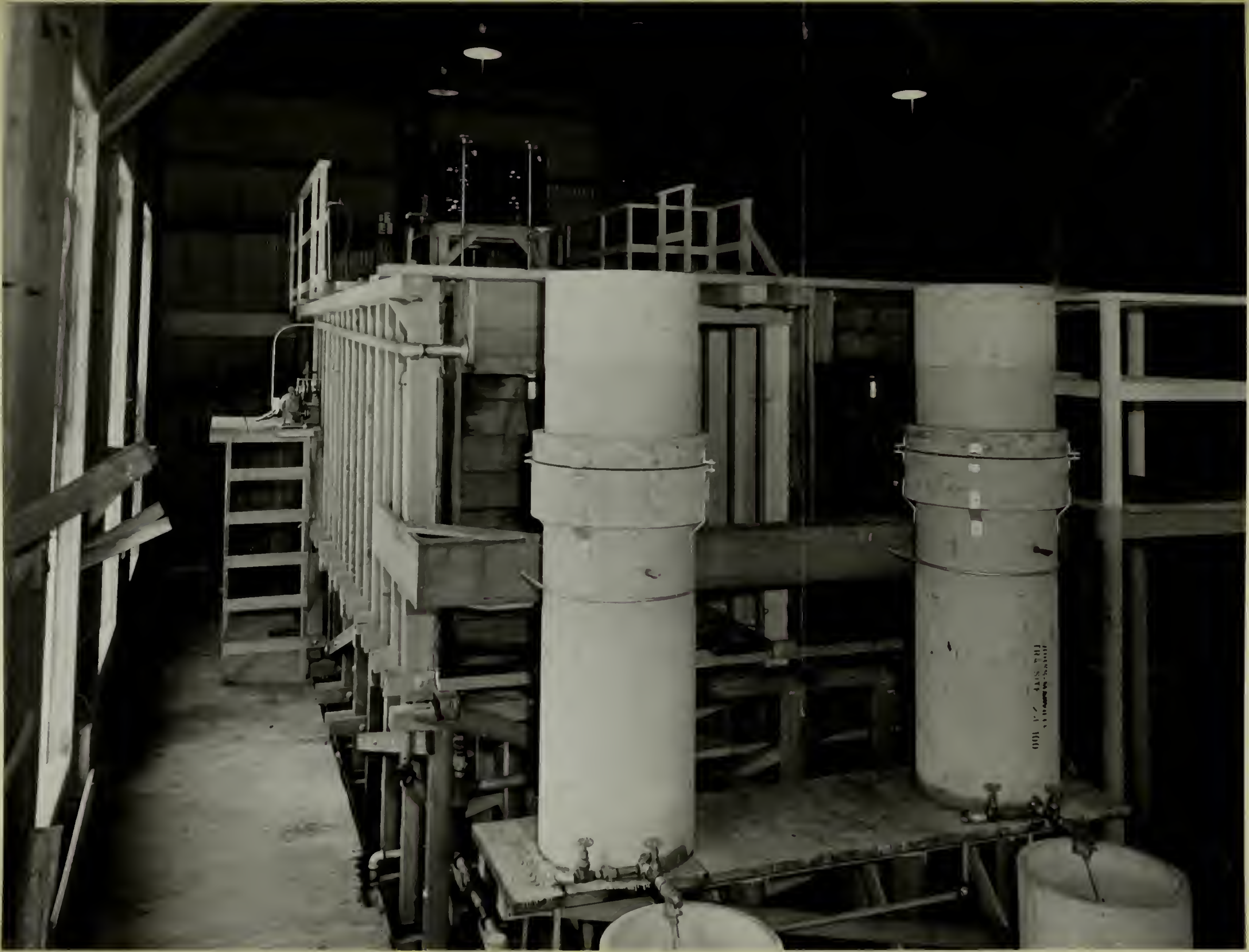
There were 2706 domestic and 27 fire services installed during the year. A total of 2890 new meters were set, 3921 meters changed and 778 returned to the shop.

A limited program of meter retirement has begun, involving those meters which have 40 or more years of service, and where the cost of meter repair parts and the cost of labor required for making repairs are approximately equal to the cost a new meter.

The meter repair shop and meter testing laboratory have been completely remodeled and overhauled, thereby speeding up the output of the meter shop and assuring the accuracy of all meters placed in the field.



24" SERVICE CONNECTION FOR CITY OF HAYWARD NEAR IRVINGTON PORTAL



PILOT EXPERIMENTAL PLANT FOR INVESTIGATION OF FILTRATION PROCESSES

WATER SALES DIVISION

Since the Department came into existence, and dating back as far as any former Spring Valley records can be found, customers' accounts have been billed on a monthly basis. In answer to popular demand, and following careful consideration of the experience of other utilities, the Department, in October 1949, inaugurated the plan of billing its residential and small commercial accounts on a bi-monthly basis. This meant that, out of approximately 145,000 accounts, some 140,000 were placed on a bi-monthly billing basis. The plan was well received by our customers and is expected to reduce Water Sales Division expense by at least $80,000 annually or approximately 13%.

Immediately following, and partly in conjunction with, the inauguration of bi-monthly billing the work of rearranging the meter reading routes and consequent renumbering of all our consumers' accounts was begun. This had become vitally necessary due to the rapid increase in accounts during recent years. The work was planned to proceed over a period of several months and absorbed some of our permanent personnel who would otherwise have been laid off due to adoption of bi-monthly billing. In this way practically all reductions in personnel have been and we expect will be, at the conclusion of the rerouting, accomplished through normal turnover. The rerouting of some 71,000 accounts had been accomplished at June 30 at a unit cost of 25.15 cents per account.

The inauguration of bi-monthly billing and the rerouting of the accounts was accomplished with a minimum of disburbance particularly insofar as both Department routine and customer convenience were concerned.

Gross water sales for the fiscal year 1949-1950 were $10,796,435. Gross Sales in San Francisco amounted to $9,082,666 while those in the Suburban area came to $1,713,769. After deducting $21,491 for allowances and refunds, total Net Sales amounted to $10,774,944 a decrease of $157,410 from 1948-49. San Francisco Net Sales, of which $623,844 were to other Municipal Departments in lieu of taxes, were $9,061,640, a decrease of $245,627.

Suburban Net Sales were $1,713,304 an increase of $88,217. The decrease in San Francisco and total Net Sales came about principally because of the adoption of bi-monthly billing in that it was necessary, during the initial month, to defer, until the following month, the billing of approximately one-half of the accounts. This resulted in a lag, but not a loss, of revenue in the sum of approximately $218,994. This figure, which is approximately fifty per cent of our bi-monthly charges for the month of July 1950, would normally have been billed in June 1950 under monthly billing. Suburban sales were not materially affected inasmuch as most of those accounts are large and remained on monthly billing.

Recorded metered deliveries amounted to 3,351.7 million cubic feet in San Francisco and 1,267.6 million cubic feet in the Suburban area, a total of 4,619.3 million cubic feet.

On July 1, 1949 a new rate schedule was adopted providing for an additional one-half cent per hundred cubic feet in revenue for water supplied within the corporate limits of the cities of San Mateo and San Carlos and from the Alameda 36-inch pipe line between those cities. This was to amortize the cost of overhauling the line. Additional revenue during the year from this special rate amounted to $14,798. Deliveries from the Palo Alto Pipe Line totalled 267,590,700 cubic feet for which we obtained $336,282 in revenue. Revenue derived from municipally operated water utilities outside San Francisco, who are taking water for resale, amounted to $551,051.

Orders received requiring the installation of new services or distributors aggregated 2,605. For the second year, the majority of these orders, 1,594, were in the South of Market-Twin Peaks area. The Sunset-Parkside area which had led in new installations in prior years was again second with 650 orders. Automatic sprinkler service orders totalled 26 during the year. New work, principally new building construction, inspected by our Builders and Contractors Section totalled 3,242.

Consumers' Accounts Receivable at June 30 amounted to $915,985, an increase of $99,808 from June 30, 1949. This increase was expected in view of the adoption of bi-monthly billing. However, the percentage of Receivables at June 30 to Sales for the month of June was only 81%. Collections for the year amounted to $10,053,747. The change over to bi-monthly billing and consequent reduction in the collection staff resulted in a decrease of 1,229 man days service by the regular collectors.

There were 19,114 closing bills issued during the year, a slight increase over the previous year. Accounts written off as uncollectible amounted to $2,022 a decrease of $626. The Suspense balance, being accounts closed and awaiting collection or write-off increased by $2,865 to $5,971 as of June 30, 1950.

There were 66 claims for damages filed against the Department during the fiscal year in the total sum of $213,570.36. These figures exclude those complaints filed where investigations revealed no responsibility by the Department and where no formal claims were filed. Twenty two claims, nine of which were filed in the current fiscal year, were denied for the total sum of $32,208.85, Sixty five claims, thirty five of them filed in the current year, originally filed for $78,681.58, were settled for $19,640.22, a further saving of $59,041.36. At June 30, 1950, eighteen claims, in the total sum of $190,624.14, remained open.

WATER PURIFICATION DIVISION

Normal water treatment practices and adequate precautions for safeguarding the San Francisco water supply were in force throughout the year. Disinfection of all supplies was continuous and all water served to consumers complied with the bacteriological standards established by the U.S. Public Health Service for drinking water purity. No case of illness can be attributed to the water supply.

Source supplies vary in chemical content from a soft mountain water, which is our major source of supply, to a relatively hard ground water supplying minor quantities. The final mixture served to consumers is moderately soft and of relatively low mineral content. In general the water is free of tastes and odors, and the clarity is good for an unfiltered supply derived primarily from surface sources.

LABORATORY:

All analyses in the fields of biology, bacteriology and chemistry, except the necessary field tests, are performed in our laboratory located at Millbrae. Facilities are good and the laboratory operates under a "Certificate of Approval" issued by the State Department of Public Health.

Following is a tabulation which summarizes the field and laboratory tests made during the year in connection with water treatment, sanitary control and special investigations:

Bacteriological Examinations	6,528
Routine Microscopical Examination of Algae	406
Other Microscopical Examinations	388
Electrical Conductivity Measurements	3,423
Complete Mineral Analyses	6
Partial Chemical Analyses	743
Dissolved Oxygen Tests	688
Analyses to Determine Origin of Leaks	189
Complaint Investigations	60
Turbidity Measurements	3,507
Miscellaneous Laboratory Tests not Otherwise Included	1,033
Chlorine Residual Tests	4,161
Miscellaneous Field Tests	2,454

New as well as replacement equipment, purchased during the year for office and laboratory, included a spectrophotometer, autoclave, hot air sterilizer, conductivity apparatus, fan for autoclave hood, typewriter and new fluorescent lights in the chemical laboratory.

CHLORINATION:

Disinfection of all supplies was adequate and continuous during the year. No water was exposed to contamination between

the time of last chlorination and the consumers service. Seven of our chlorination stations operated continuously, with Tesla, Calaveras, Irvington, San Andres No. 3 and Sunset operating 11.6 months, 6.1 months, 0.3 month, 11.8 months and 7.4 months respectively. The portable chlorination unit was used on a few occasions for the sterilization of new pipelines. All equipment was regularly inspected, overhauled or repaired when necessary, and maintained in good working condition at all times.

A total of 902,527 pounds of chlorine was used during the year, the major portion of which was used for the maintenance of chlorine residuals throughout the Coast Range tunnels and Bay Crossing lines for the control of organisms entering with tunnel infiltration water. Normal variations in chlorine dosages at the Peninsula stations ranged from 4.0 to 6.3 pounds per million gallons with an overall average of 4.85 pounds per million gallons. Chlorine dosages at the City Distribution Division stations were somehwat lower while dosages at stations in the Alameda Division and Tesla were considerably higher in order to maintain the desired residuals throughout the aqueduct.

Award was made for two new solution feed chlorinators to replace the last of the direct chlorine gas feed units now used at San Andres No. 1 station. Plans and specifications are nearly completed for modernizing the station. Construction and installation of the equipment is to be completed during the coming year. Programming equipment is being built in our city shops for installation on the existing chlorinator at Sunset reservoir to correlate chlorine feeds with the daily flow fluctuations from the reservoir.

Expansion of Tesla chlorination station facilities was in progress at the end of the year. These include the installation of a chlorine evaporator, a new 2000 pound per day chlorinator, an additional chlorine solution line, an electric hoist, and a new tank to increase water storage.

ALGAE CONTROL:

Algae activity in Peninsula reservoirs continued below normal as compared with records for the past years. This, coupled with low lake levels in Calaveras reservoir, resulted in sub-normal use of copper sulfate for algae control. Treatments were based on microscopical examinations of weekly or semi-weekly net catches from the various local storage and impounding reservoirs. The total copper sulfate requirements for the year was 72,600 pounds. Calaveras reservoir, which was treated during the months of August, September and May for the control of Ceratium, Anabaena and Volvox, required 33,300 pounds of copper sulfate. Upper Crystal Springs reservoir was treated in late August to control a general algal increase as well as to

destroy a beginning growth of Anabaena this required 8,000 lbs. of copper sulfate. Lower Crystal Springs reservoir was treated in early September for the control of diatoms, especially Synedra· this required 10,400 lbs. of copper sulphate. San Andres reservoir was treated in early September to control Anabaena and again in early May for control of Asterionella and Synedra, which required 18,100 lbs. of copper sulfate. Pilarcitos reservoir, which was treated in October for control of Ceratium, Aphanizomenon and Anabaena· and again in May for control of Synedra and Mallomonas, required 2,700 lbs. of copper sulfate. The small Stone Dam reservoir was treated twice, and required 100 lbs. of copper sulfate. None of the City distribution reservoirs required treatment for algae control during the year.

CROSS CONNECTIONS:

The number of services to consumers having cross connections with other sources of supply on their premises and protected from back flow by double check valve assemblies was reduced slightly during the year due to abandonment of wells or discontinuance of service. There are 103 such services within the City and 54 to suburban consumers. Nearly all check valve assemblies were checked during the year and any found defective were repaired by the consumer at our request. In addition, there are some 385 of these check valve assemblies installed on service lines to fire or water service hydrants on the water front to protect the system against possible salt water contamination. Two hundred nine were originally installed and are now maintained by the Water Department. Spot checks throughout the year indicated that these assemblies were operating efficiently. State and Federal Health Authorities require the installation and inspection of these backflow protection assemblies in order that the supply be approved for certification.

INSPECTION:

Inspections were made during the year of the Bay Crossing lines, Irvington tunnel, Calaveras line, San Joaquin pipeline, Foothill Tunnel and a few places in the Mountain Division Tunnels to determine slime organism activity. For the fourth consecutive fiscal year, no inspection was made of the Coast Range Tunnels. Control of organisms entering with tunnel infiltration water continues to be a problem in the Coast Range tunnels and aqueducts to the east. Mixing waters from various sources in the Irvington tunnel and Bay division lines makes control difficult. However, chlorine dosages were continued at high levels during the year in order to maintain chlorine residuals throughout the aqueduct and control was fairly satisfactory.

Periodic sanitary inspections of the watersheds were made for protective purposes. The usual annual survey by the representatives of the State Health Department, of the laboratory, records and treatment facilities for certification purposes was not made during this fiscal year. However, as the pending survey pertains to certification for 1950, it will probably be made early in the next fiscal year.

CORROSION CONTROL:

The extremely soft Hetch Hetchy water, which is quite aggressive, continues to attack our transmission lines where protective coating is absent. This water when not mixed with local supplies, causes some complaints of red water from Bay Crossing line consumers. The contract for construction of a lime treatment plant to be located at Rock River shaft was awarded during the latter part of the fiscal year. Operations are to begin in the coming year and this treatment should retard to a great extent, the corrosive character of this water.

WATER QUALITY AND COMPLAINTS:

Reduced use of ground water sources during the year resulted in a slight decrease in chemical content of the water served to consumers as compared to last year. However, the chemical quality, as well as the bacteriological quality, continued to be excellent, and the concentrations of dissolved salts were well under the recommended limits established by the U. S. Public Health Service in their drinking water standards. Harmful elements such as arsenic, lead and hexavalent chromium were absent or present only in "trace" amounts well under allowable limits. Elements such as copper, iron, zinc, magnesium, sulfates and chlorides were well within accepted limits for drinking water. Iodine content was low but not entirely absent, boron was low, and fluoride was present but not in concentrations high enough to be of value in the reduction of dental caries.

The average monthly hardness of water served from the Peninsula reservoirs ranged from 54 ppm to 72 ppm with an overall weighted average of about 63 ppm or 3.68 grains per gallon. The pH ranged from 7.3 to 7.9 with an average of 7.65, the alkalinity ranged from 50 ppm to 68 ppm, with an average of 58 ppm and the chlorides ranged from 8 to 16 ppm, with an average of 12 ppm. Water temperatures ranged from a winter minimum of 44°F to a summer maximum of 68°F, with an average of about 57.4°F. The dissolved oxygen content ranged from 4.6 ppm to 13.2 ppm, with an average of 9.1 ppm or about 94 percent of saturation.

The average monthly hardness of water served from the Bay Crossing lines ranged from 24 ppm to 58 ppm with an average of about 39 ppm, or 2.3 grains per gallon. Daily fluctuations however, exceeded these values, ranging from 16 ppm to 118 ppm. The pH ranged from 7.1 to 7.9, with an average of 7.4; the alkalinity ranged from a minimum of 13 ppm to a maximum of 112 ppm, with an overall average of about 34 ppm; and the chlorides ranged from 5 ppm to 14 ppm, with an average of 7 ppm. Water temperatures ranged from 46°F to 66°F, with an average of about 56°F. The dissolved oxygen content ranged from 7.6 ppm to 12.4 ppm, with an overall average of about 10.1 ppm.

Another year of subnormal local runoff again aided in maintaining fairly clear water in the Peninsula reservoirs, permitting withdrawal of low turbidity water even during winter months for consumer use. Still, the major cause of water quality complaints has continued to be dirty water. Only a thorough flushing of much of the distribution system and filtration of all water will eliminate this trouble. In line with this program, an experimental filter plant was constructed this year to obtain specific data on treatment methods best suited to our water. Data compiled will determine design factors when plants are built.

OPERATION OF CHLORINATION STATIONS

LOCATION		TOTAL OPERATING TIME (MONTHS)	CHLORINE USED (POUNDS)	
DIVISION	STATION		STATION TOTAL	DIVISION TOTAL
Coast Range H. H. W. S.	Tesla	11.6	478,198	478,198
Alameda	Calaveras	6.1	192,848	
	Sunol (Niles Aq.)	12	23,017	
	Irvington	0.3	1,175	217,040
Peninsula	Crystal Springs	12	93,786	
	San Andres #1	12	8,389	
	" " #2	12	61,700	
	" " #3	11.8	5,055	168,930
City Distribution	College Hill	12	8,370	
	Lombard	12	587	
	University Mound:			
	Line #1	12	14,255	
	Line #2	10.7	12,746	
	Sunset	7.4	1,888	37,846
Portable Chlorination Unit				513
			Total	902,527

SAN FRANCISCO WATER DEPARTMENT

MINERAL ANALYSES - WATER SERVED TO CONSUMERS

(Results expressed in parts per million, except pH and conductivity.)

SOURCE	Crystal Springs Lines	San Andres Lines	Bay Crossing * Lines
Conductivity ($K \times 10^{-5} ohm^{-1}$)	16.2	17.3	10.6
pH	7.5	7.5	7.3
Total Solids (Calculated)	97	101	63
Silica (SiO_2)	6.0	8.5	7.0
Sodium (Na)	11.7	12.4	6.5
Calcium (Ca)	16.5	16.4	9.5
Magnesium (Mg)	4.9	5.6	3.7
Iron, Dissolved (Fe)	0.02	0.01	0.03
Aluminum (Al)	0.02	0.02	0.05
Manganese (Mn)	0	0	0
Boron	0.10	0.10	0.16
Fluoride (F)	0.05	0.05	0.09
Carbonate (CO_3)	0	0	0
Bicarbonate (HCO_3)	63.2	65.9	41.5
Sulphate (SO_4)	17.8	13.2	8.7
Chloride (Cl)	9	13	7
Nitrate (NO_3)	0.05	0.05	0.10
Hardness, Calculated ($CaCO_3$)	61	64	39
Alkalinity ($CaCO_3$)	52	54	34

Column 1 supplies downtown, commercial, waterfront areas of the City, and peninsula communities as far south as San Carlos.
Column 2 supplies residential areas of the city.
Column 3 supplies peninsula communities only (south of San Carlos).
*Approximate overall average for water served from these lines.

SAN FRANCISCO WATER DEPARTMENT

MINERAL ANALYSES - SOURCE SUPPLIES

(Results expressed in parts per million, except pH and conductivity.)

SOURCE	Hetch Hetchy Reservoir	Calaveras Reservoir	Pleasanton Wells	Sunol Filters	Pilarcitos Reservoir
Conductivity ($K \text{ x } 10^{-5}\text{ohm}^{-1}$)	1.8	19.2	54.8	46.6	19.9
pH	6.9	7.7	7.9	7.9	7.7
Total Solids (Calculated)	27	108	321	286	107
Silica (SiO_2)	13.0	7.5	15.0	13.5	7.0
Sodium (Na)	1.2	6.8	30.1	25.8	13.7
Calcium (Ca)	2.4	21.5	51.4	51.9	14.4
Magnesium (Mg)	1.0	7.8	25.4	13.8	5.2
Iron, Dissolved (Fe)	0.01	0.04	0.03	0.03	0.01
Aluminum (Al)	0.01	0.03	0.03	0.05	0.02
Manganese (Mn)	0	0	0	0	0
Boron (B)	0.1	0.15	0.18	0.39	0.07
Fluoride (F)	0.08	0.10	0.05	0.10	0.05
Carbonate (CO_3)	0	0	0	0	0
Bicarbonate (HCO_3)	10	98	269	193	62
Sulphate (SO_4)	3.2	10.6	39.5	62.8	20.2
Chloride (Cl)	1	5	28	21	16
Nitrate (NO_3)	0.01	0.15	0.50	0.02	0.07
Hardness, Calculated ($CaCO_3$)	10	86	233	187	57
Alkalinity ($CaCO_3$)	8	80	220	158	51

Exact analyses of runoff into Crystal Springs and San Andres reservoirs cannot be made as water from all sources in use mixes in these reservoirs.

MONTHLY SUMMARIES OF BACTERIOLOGICAL ANALYSES

SAMPLES COLLECTED FROM THE SAN FRANCISCO DISTRIBUTION SYSTEM

IN ACCORDANCE WITH CERTIFICATION REQUIREMENTS

Month	Number of Samples	10 ml. Portions			Samples Positive (3 or More Tubes)	
		Number of Tubes	Tubes Positive	Per Cent Positive	Number Positive	Per Cent Positive
1949						
July	321	1605	50	3.11	10	3.11
August	352	1760	11	0.62	0	0
September	349	1745	4	0.23	0	0
October	348	1740	15	0.86	2	0.57
November	320	1600	12	0.75	2	0.63
December	351	1755	3	0.18	0	0
1950						
January	329	1645	0	0	0	0
February	312	1560	2	0.13	0	0
March	351	1755	4	0.23	0	0
April	315	1575	12	0.76	2	0.63
May	348	1740	6	0.34	0	0
June	347	1735	6	0.35	0	0

REPORT OF LABORATORY EXAMINATIONS

San Francisco Water Department
San Francisco, California

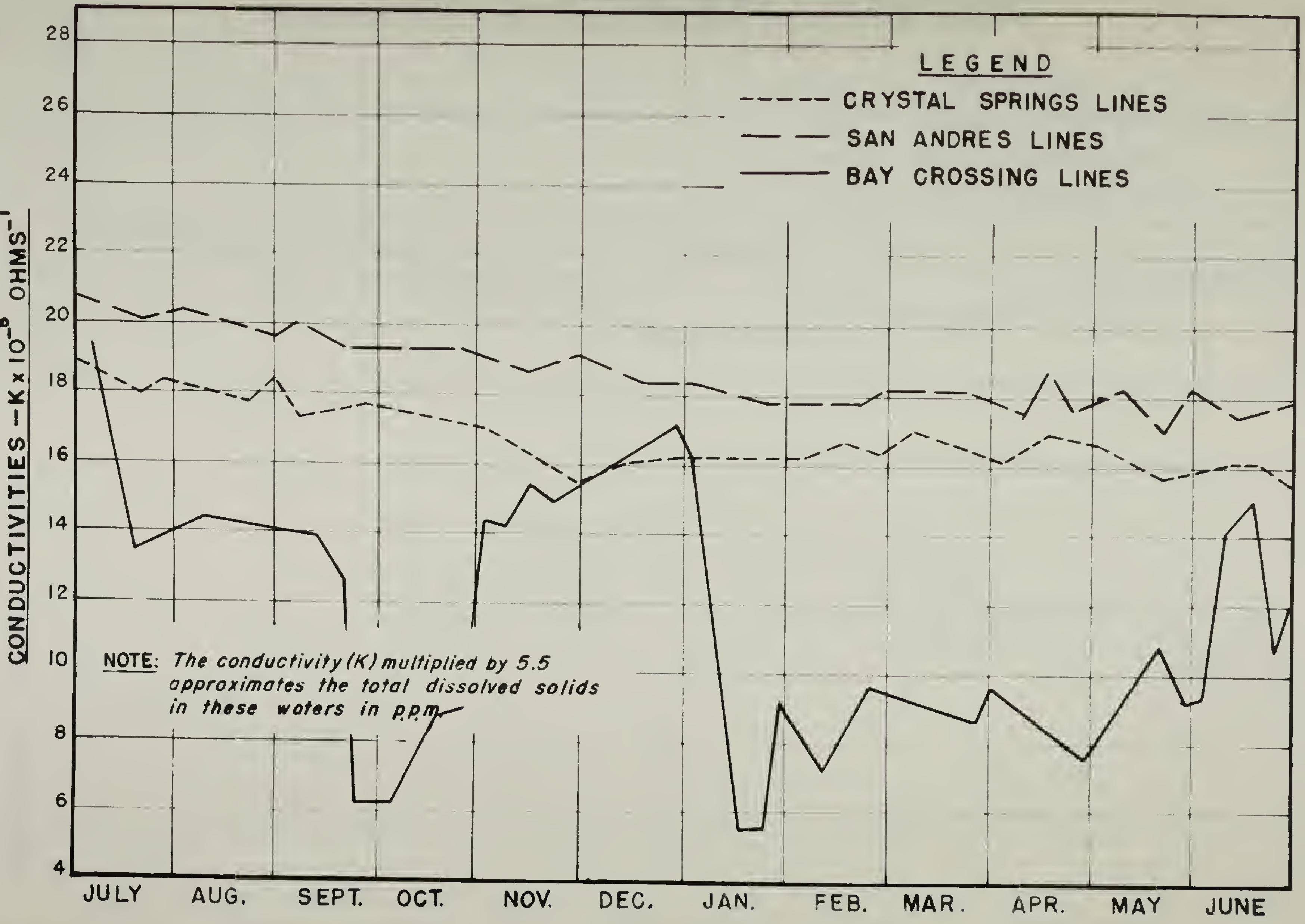
Week Ending June 30 1950

Source and Reservoirs	Max. Agar. Count 37° C	Coliform Group 10cc Por. No. Examined	No. Positive	% Pos. Month	Chemicals p.p.m. Alk.	Cl	Hard	p H	Tur-bid-ity	Date Sample Pos.
Moccasin Reservoir	160	5	1	64	10	1	10	6.9	2.0	(1)6-27
Calaveras Reservoir	3	5	1	4	92	7	98	7.7	8.5	(1)6-27
Sunol Filters	1	5	0	36	193	16	210	7.9	0.5	
Pleasanton Wells	1	5	0	0	210	29	236	7.9	0.5	
Crystal Springs Res.	2	5	0	4	56	11	58	7.7	3.0	
San Andres Res.	1	5	0	32	60	14	66	7.7	2.5	
Pilarcitos Line	1	5	0	8	57	20	60	7.7	2.5	
College Hill Res.	2	10	0	37.8					2.0	
Lombard Reservoir	1	10	4	62.2					2.0	(4)6-26
Univ.Mound Res. #1	1	10	4	20					4.5	(3)6-26(1)6-29
Univ.Mound Res. #2	1	10	0	2.2					2.5	
Sunset Reservoir	1	10	0	2.2					2.0	
TREATED WATERS										
Niles Aqueduct	1	5	0	0	196	20	212	7.9	0.5	
Irvington Pump Station	1	5	0	0	196	20	212	7.9	0.5	
Sunol Town Supply	1	10	0	0	40	7	46	7.5	3.5	
Hetch Hetchy Aq.Bay X	1	30	0	0.8	40	7	46	7.5	4.0	
Palo Alto Pipe Line	1	15	0	0	40	7	46	7.5	3.5	
Crystal Springs Line #1	2	30	0	0	56	11	58	7.5	3.0	
Alameda Line, Belmont	1	10	0	0	56	11	58	7.5	4.0	
S.F. Airport	1	10	0	0	56	11	58	7.5	2.5	
Crystal Springs Line #2	1	30	0	0	52	11	56	7.7	1.5	
San Andres Line No. 1	2	30	0	0	60	13	66	7.7	2.5	
San Andres Line #2	1	30	0	0	60	14	66	7.7	2.5	
San Andres Line #3	1	10	0	0					1.5	
Univ.Mound Inlet #1	1	10	0	0					2.0	
Univ.Mound Inlet #2	1	10	0	2.2					2.5	
Univ.Mound Outlet #1	1	10	0	0					2.5	
Univ.Mound Outlet #2	1	10	0	0					3.0	
Univ.Mound System #1	1	10	0	0					2.5	
Univ.Mound System #2	1	10	0	0					4.0	
Univ.Mound System #3	1	10	0	2.2					2.5	
Univ. Mound System #4	3	10	0	0					2.5	
Univ.Mound System #5	11	10	0	0					4.0	
Univ.Mound System #6	3	10	0	0					2.5	
College Hill Inlet	1	10	0	0					2.0	
College Hill Outlet	1	10	0	0					2.5	
College Hill System #1	1	10	0	0					2.5	
College Hill System #2	1	10	0	0					2.5	
Sunset Trans.System	1	10	0	0					4.5	
Sunset Inlet	1	10	0	0					2.0	
Sunset Outlet	1	10	0	0					2.0	
Sunset System #1	1	10	0	0					2.5	
Sunset System #2	1	10	0	0					2.5	
Merced Manor Reservoir	2	10	0	4.4					2.5	
Merced Manor System	1	10	0	0					3.5	
Stanford Heights Res.	3	10	0	2.2					2.0	
Stanford Heights Sys. #1	1	10	0	2.2					2.5	
Stanford Heights Sys. #2	11	10	0	0					2.5	
Lombard System	1	10	0	0					2.5	
Forest Hill Pump Suct.	1	10	0	0					2.0	

Tubes positive for all transmission lines and S.F. samples for month 0.38%

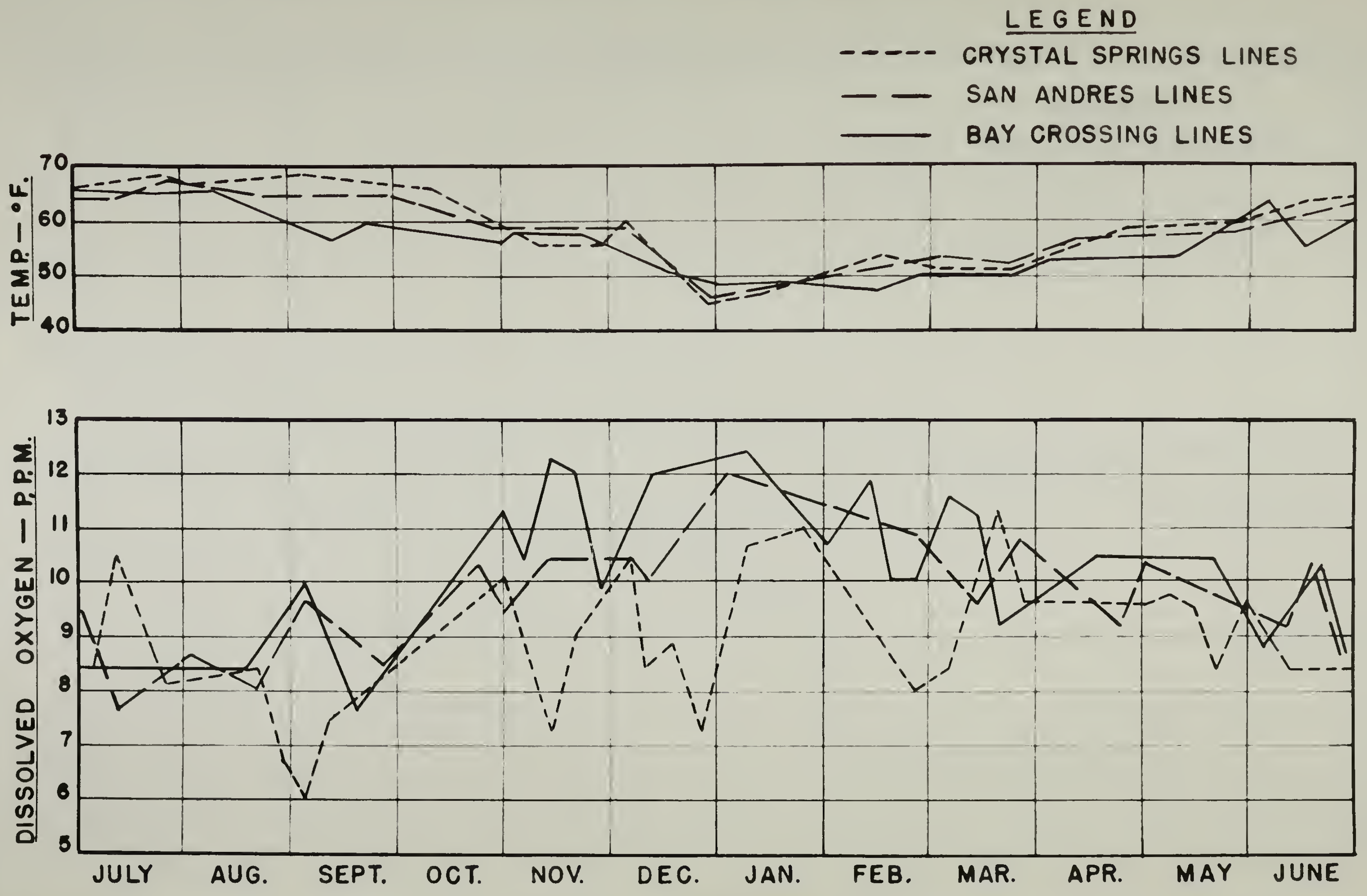
REMARKS: All water served to consumers complies with the United States Public Health Service Standards for drinking and culinary water supplied to common carriers in interstate traffic.

ELECTRICAL CONDUCTIVITIES OF WATER DELIVERED TO CONSUMERS
1949-1950



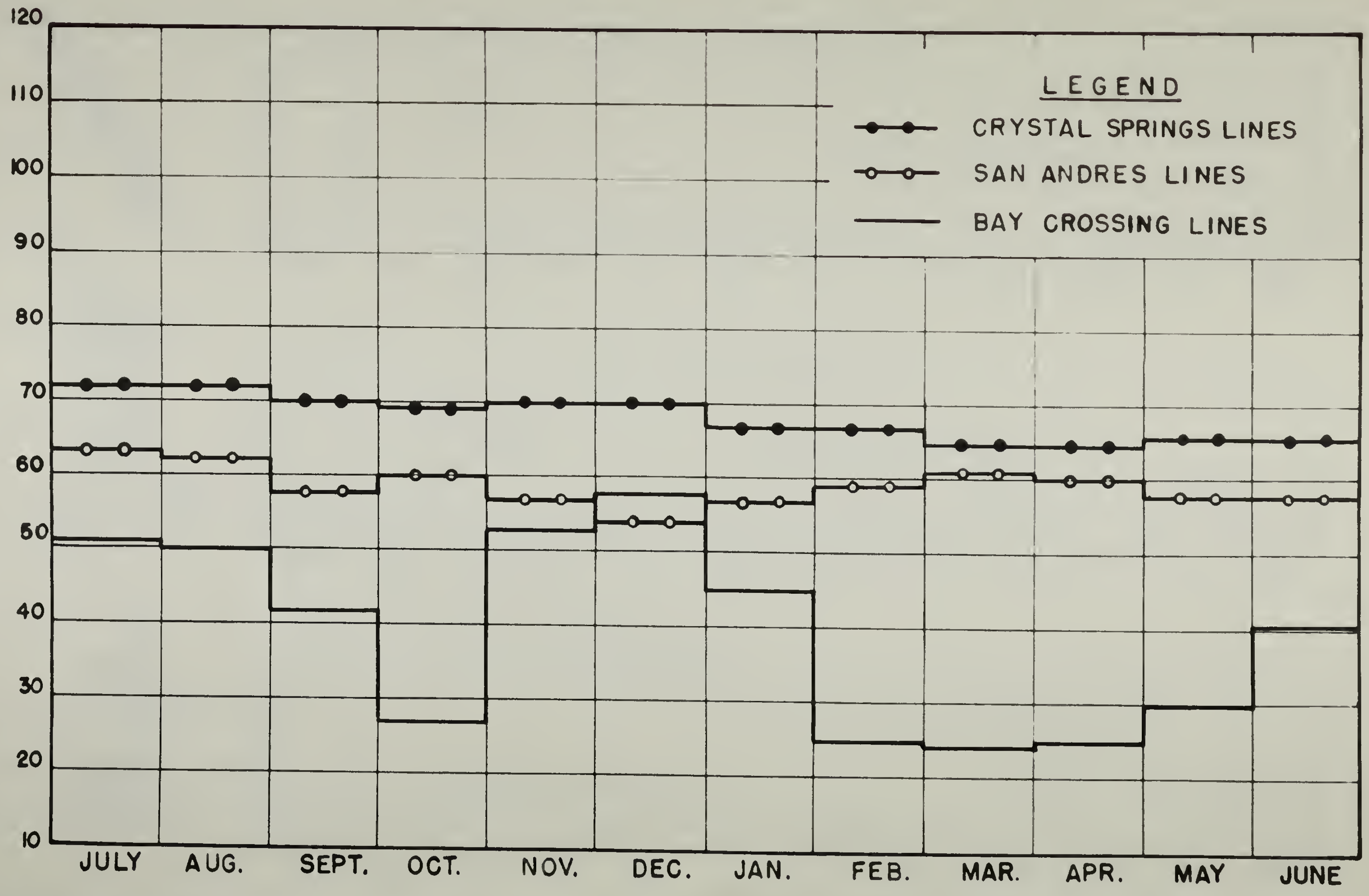
NOTE: *The conductivity (K) multiplied by 5.5 approximates the total dissolved solids in these waters in p.p.m.*

TEMPERATURE AND DISSOLVED OXYGEN OF WATER DELIVERED TO CONSUMERS 1949—1950



HARDNESS OF WATER DELIVERED TO CONSUMERS 1949-1950

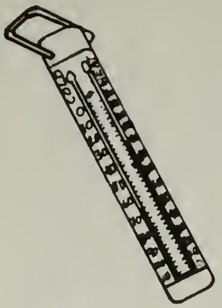
(MONTHLY AVERAGES- PARTS PER MILLION AS $CaCO_3$)



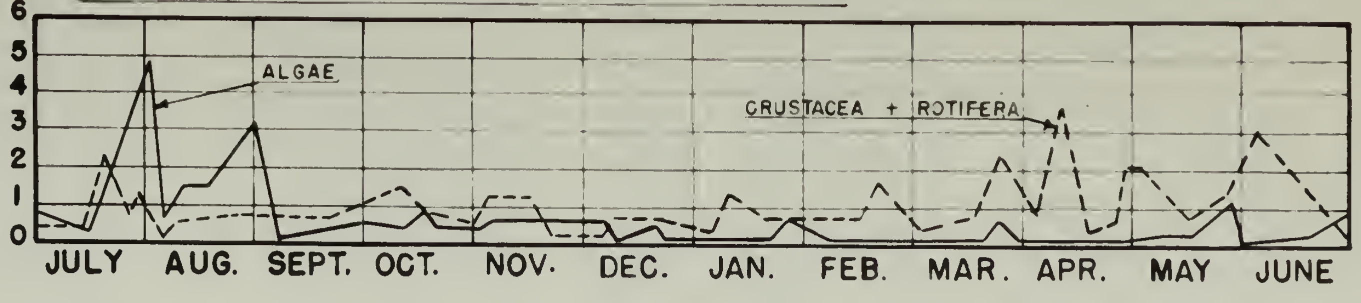
PENINSULA RESERVOIRS

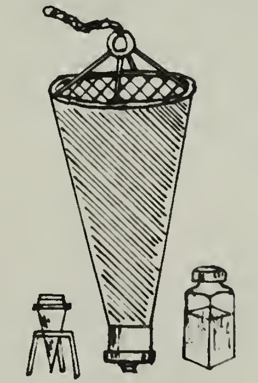
MICROSCOPICAL ORGANISMS — C.C. PER CU. METER

1949—1950

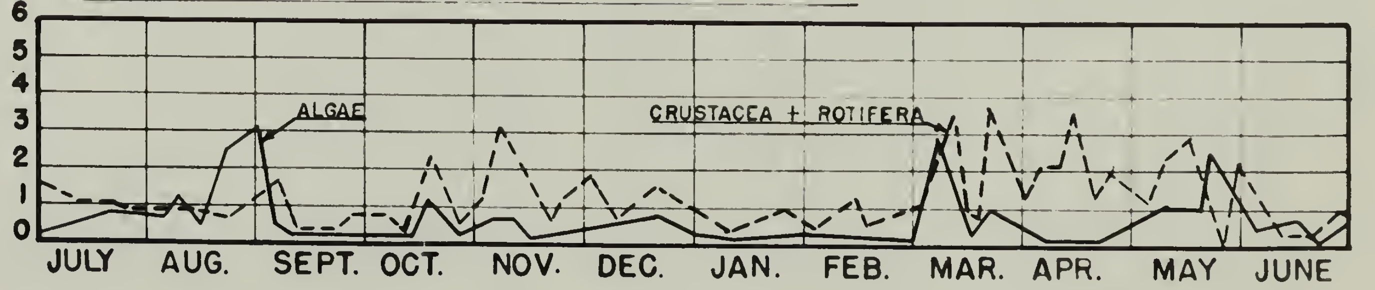


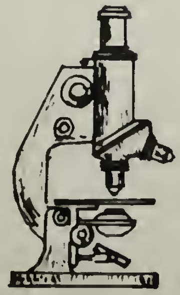
UPPER CRYSTAL SPRINGS RESERVOIR



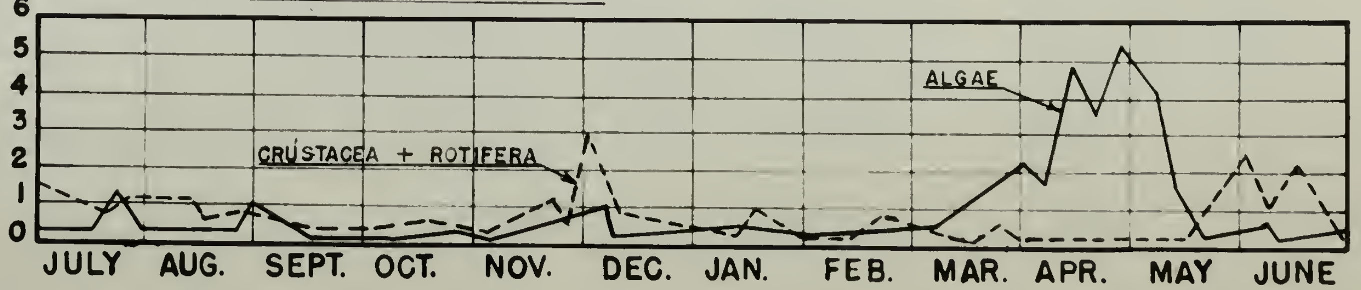


LOWER CRYSTAL SPRINGS RESERVOIR





SAN ANDRES RESERVOIR



ENGINEERING DIVISION

The work of the Engineering Division, during the past year, was primarily concerned with the preparation of plans, specifications, engineering studies, reports, estimates of cost, inspection of construction and in some cases the supervision of maintenance work. Various other services of a continuous nature were performed during the year including the preparation of property descriptions, revocable permits and the stating of conditions for land transactions; the maintenance of maps and records and the furnishing of photostatic and photographic service to all city owned utilities.

Plans and specifications were prepared for 31 formal and 2 informal Water Department contracts which were awarded for a total estimated amount of $8,750,508. Engineering supervision and inspection services were provided for $1,343,515.54 worth of contract work actually completed during the year. Of the 31 formal contracts awarded during the fiscal year 1949-50, there were 26 for water main extensions.

One of these extensions was awarded to the Water Department in an amount totaling $15,114.75; and was completed during the year at a cost of $11,183.88 or $3,930.87 less than the bid price.

A survey of proposed capital improvements to the water system was made, in connection with budgetary and city planning purposes, for the period beginning July 1, 1950, and ending June 30, 1956. Water Department requirements for this period were estimated at some $30,500,000.00 worth of improvements having varying degrees of urgency. A number of the more essential extensions, programed to start next year and for which funds have not been appropriated in whole or part, include the following projects:

Project	Total Estimated Cost
Forest Hill Pumps & Piping	$ 80,000.
Sutro Reservoir Supply & Discharge Mains	1,605,000.
Cathodic Electrolysis Erosion Protection	30,000.
Balboa Reservoir - North Basin	1,800,000.
800 Foot Elevation Reservoir, Twin Peaks	240,000.
Relocation of Crystal Springs Pipelines-Brisbane	429,000.
Replacement of Crystal Springs 44" Pipeline Burlingame to San Bruno	1,320,000.
Corporation Yard	922,000.

Two contracts for constructing the Bay Division Pipeline No. 3, amounting to an estimated cost of $8,344,010. were

arded November 23, 1949 and are scheduled for completion on Otober 28, 1951. This pipe line will connect to the Coast Range Tnnel at Irvington portal, thence extend southerly 8.5 miles with 7 inch pipe to the vicinity of Milpitas from whence a 72 inch ppeline will run westerly 25.25 miles and connect with the east prtal of the Pulgas Tunnel. The overall length of the pipeline wll be 33.75 miles. This pipeline was designed for a maximum pessure head of 400 feet in the valley section and a capacity of 7 million gallons a day.

A contract for extending the Crystal Springs Pumping Sation was completed July 29, 1949 at a total construction cost $81,968.00. The work included the extension of the pump staton building; the extension of the chlorination building and fcilities, and the installation of two complete pumping units, ech consisting of a 500 horsepower induction motor and two centrifgal pumps hooked up in tandem. The additional pumping units wll serve to boost water through the 60" Crystal Springs Pipeline, tereby maintaining the pipeline capacity of 50 million gallons r day during periods of low storage in Crystal Springs reservoir.

Cleaning and coating the Bay Crossing pipelines and teir steel supporting trestle-work at Dumbarton are being complished under a contract awarded March 13, 1950 for an estited cost of $58,800.00.

Plans and specifications for the concrete lining and ofing of Sutro Reservoir were near completion in May but the tking of bids was delayed to await agreement with the Art Comssion as to the proper extent of landscape planting to provide th the work. Total capacity of this reservoir will be about .4 million gallons. Excavation and embankment were completed 1947 but deferred financing delayed the preparation of contract ans and specifications until this year.

Contract plans and specifications are in preparation for new pumping station to be located on the southeasterly shore of ke Merced that will provide electric motor driven pumping units r taking water from Crystal Springs reservoir via the Sunset pipene, and pump it into Sunset and Sutro reservoirs. This new pumping ation and connecting water mains will also provide a means of taking ter from Lake Merced during an emergency, such as occurred in 1906, ereby some 45,000,000 gallons per day for a period of about 40 days y be supplied to the City, thus allowing time to make almost any nceivable repair to the transmission mains bringing water into the ty. Provision is also being made to permit extensions to the ation at some future time, for installation of diesel-electric enerators for furnishing power during periods of interruptions to lectrical service supplied from outside sources.

A brief description of work performed under contract during e fiscal year follows:

FORMAL CONTRACTS:

1. Additions to City Pipe System:

In all contracts involving the laying of cast iron or transite pipe or the installation of services, the Contractor is required to obtain the pipe and fittings from the Water Department. The cost of this material, of connections made by the department's forces, and of engineering and inspection are included in the following stated contract costs. In cases where the Water Department acts as the Contractor the cost given is the actual cost of the completed work.

Extensions and replacements to the Department's distribution grid system are made under contract, the Department furnishing all necessary pipe, fittings and services material. The value of these items, and the engineering and inspection costs are set-up in the contract bid sheets in a manner so that the "bid total" includes the cost of furnished items, engineering and inspection, and the summation represents the total cost to the Department for the facility. On most of this class of work the Water Department submits a bid and does the work if its bid is the lowest of those received.

Contract No. 508 - For the installation of 40 services and the laying of 732 feet of 8-inch cast iron mains in Athens Street from Madison to Peru Street. The contract was awarded to E. J. Tready on May 9, 1949 and completed on August 6, 1949 at the cost of $4,059.86.

Contract No. 509 - For the installation of 7 services, one 8-inch fire sprinkler service and the laying of 912 feet of 8-inch cast iron mains in Jones Street and Quintara Street. The contract was awarded to F. T. Fairey on May 23, 1949, and completed on August 6, 1949 at the cost of $4,553.91.

Contract No. 510 - For the installation of 120 services and the laying of 1,786 feet of 6-inch and 1,630 feet of 8-inch cast iron mains in South Hill Boulevard, Rolph Street and Chicago Way. The Contract was awarded to F. T. Fairey on May 23, 1949, and completed on August 6, 1949 at the cost of $16,220.24.

Contract No. 515 - For the installation of 37 services and the laying of 23 feet of 6-inch and 1,713 feet of 8-inch cast iron mains in Orizaba and Alpha Streets and in Silver Avenue. The contract was awarded to the San Francisco Water Department on July 25, 1949 and completed on June 17, 1950 at the cost of $11,183.33.

Contract No. 516 - For the installation of 109 services and the laying of 218 feet of 4-inch, 1,726 feet of 6-inch and 3,057 feet of 8-inch cast iron mains in the Crocker Amazon Highlands. The contract was awarded to E. J. Treacy on August 8, 1949, and completed on January 7, 1950 at the cost of $11,236.32.

Contract No. 518- For the laying of 2,655 feet of 16-inch cast iron mains in 45th Avenue from Lawton Street to Lincoln Way. The contract was awarded to M. J. and H. Treacy on August 29, 1949 and completed on November 5, 1949 at the cost of $31,465.27.

Contract No. 519 - For the laying of 3,007 feet of 12-inch cast iron mains in Ocean Avenue and in Victoria Street. The contract was awarded to J. I. Gallagher on October 3, 1949, and completed on December 13, 1949 at the cost of $30,453.67.

Contract No. 520 - For the laying of 645 feet of 6-inch cast iron mains in Victoria Street between Sargent and Randolph Streets. The contract was awarded to F. T. Fairey on August 29, 1949, and completed on November 14, 1949 at the cost of $ 3,473.30.

Contract No. 523 - For the laying of 4,414 feet of 12-inch cast iron mains in Calgary, Sawyer and Leland Avenue from Geneva Avenue to Delta Street. The contract was awarded to F. T. Fairey on September 19, 1949 and completed on November 19 1949 at the cost of $36,904.35.

Contract No. 525 - For installation of 74 services and the laying of 653 feet of 6-inch and 1,313 feet of 8-inch cast iron mains in Niantic Avenue, Moffitt and Farnum Streets. The contract was awarded to M. J. and H. Treacy on October 17, 1949, and completed on February 25, 1950 at the cost of $9,114.39.

Contract No. 527 - For the laying of 80 feet of 6-inch and 1,734 feet of 12-inch cast iron mains in Loomis Street from Oakdale Avenue to Industrial Street and in Visitacion Avenue east of Bayshore Boulevard. The contract was awarded to B. M. Thomas on October17, 1949, and completed on December 21, 1949 at the cost of $13,696.80.

Contract No. 528 - For the laying of 1,146 feet of 6-inch cast iron mains in San Bruno Avenue from Wilde Avenue to Wabash Terrace. The contract was awarded to the Lowrie Paving Company on October 17, 1949, and completed January 5, 1950 at the cost of $5,022.27.

Contract No. 529 - For the laying of 1,525 feet of 6-inch and 203 feet of 8-inch cast iron mains in Bernal Heights Blvd. and in States Street. The contract was awarded to the Lowrie Paving Company on November 7, 1949, and completed on January 28, 1950 at the cost of $8,118.81.

Contract No. 530 - For the installation of 48 services and the laying of 609 feet of 6-inch transite mains in 47th Avenue between Ulloa and Vicente Streets. The contract was awarded to F. T. Fairey on November 28, 1949 and completed on January 7, 1950 at the cost of $2,723.11.

Contract No. 531 - For the installation of 30 services and the laying of 372 feet of 6-inch and 401 feet of 8-inch cast iron mains in Peru Avenue and in Valmar Terrace. The contract was awarded to F. T. Fairey on February 20, 1950, and completed on May 27, 1950 at the cost of $3,213.03.

Contract No. 532 - For the installation of 35 services and the laying of 42 feet of 6-inch and 767 feet of 8-inch cast iron mains in Avalon Avenue between Moscow and Knox Streets. The contract was awarded to F. T. Fairey on December 27, 1949, and completed on January 28, 1950 at the cost of $4,794.59.

Contract No. 533 - For the installation of 47 services and the laying of 1,267 feet of 6-inch and 565 feet of 8-inch cast iron mains in Lakeshore Subdivision No. 4. The contract was awarded to F. T. Fairey on December 27, 1949, and completed on February 28, 1950 at the cost of $7,892.23.

Contract No. 534 - For the installation of 10 services and the laying of 630 feet of 6-inch and 420 feet of 8-inch cast iron mains in Kirkham Heights Subdivision. The contract was awarded to the Lowrie Paving Company on February 14, 1950, at an estimated bid price of $5,139.50. As of June 30, 1950, no work has been started on this contract.

Contract No. 535 - For the installation of 58 services and the laying of 1,508 feet of 6-inch cast iron mains in Inca Court and in Bancroft Avenue between Jennings and Keith Streets. The contract was awarded to Lowrie Paving Company on February 7, 1950, and completed on March 8, 1950 at the cost of $4,672.59.

Contract No. 537 - For the installation of 48 services and the laying of 921 feet of 6-inch and 360 feet of 8-inch cast iron mains in Colby, Dwight and University Streets. The contract was awarded to the Lowrie Paving Company on March 13, 1950, at an estimated bid price of $5,123.70. As of June 30, 1950 no work has been started on this contract.

Contract No. 541 - For the installation of one 8-inch fire sprinkler service and the laying of 375 feet of 8-inch cast iron mains in Beach Street betwen Jones and Taylor Streets. The contract was awarded to F. T. Fairey on April 3, 1950, and completed on May 11, 1950 at the cost of $2,544.55.

Contract No. 542 - For the installation of 34 services and the laying of 296 feet of 6-inch and 1,432 feet of 8-inch of transite and 524 feet of 12-inch cast iron mains in the Lakeshore Park Subdivision No. 4 Extension. The contract was awarded to the Callahan Construction Company on April 17, 1950, and completed on June 19, 1950 at the cost of $10,379.56.

Contract No. 543 - For the installation of 46 services and the laying of 897 feet of 6-inch cast iron mains in Bowdoin and Dwight Streets. The contract was awarded to the B. Miles Thomas Company on May 8, 1950, and completed on June 17, 1950 at the cost of $3,242.20.

Contract No. 545 - Fop the installation of 41 services and the laying of 700 feet of 6-inch and 85 feet of 8-inch cast iron mains in Athens Street and in Valmar Terrace. The contract was awarded to F. T. Fairey on May 31, 1950 at the estimated bid price of $3,578.05. As of June 30, 1950 no work has been started on this contract.

2. Additions to Supply and Transmission Facilities:

Contract No. 521 - For installation of water service to Royal Container Corporation at Millbrae, California. Contract was awarded to E. T. Haas, on June 27, 1949 and was completed on November 30, 1949 at a total cost of $8,616.53.

Contract No. 522 - Construction of a 24" water service for City of Hayward near Irvington Portal adjacent to State highway between towns of Niles and San Jose, Contra Costa County. Contract was awarded to Conduit Construction Company on August 22, 1949 and was completed on November 25, 1949 at a total cost of $6,291.05.

Contract No. 524- Construction of Bay Division Pipeline No. 3 from Irvington Portal in Alameda County to the east portal of Pulgas Tunnel in San Mateo County, California, a distance of 34 miles. This was awarded in two contracts on November 23, 1949, Section AC at an estimated bid price of $4,246,464.50 to the United Concrete Pipe Corporation, and Section B at an estimated bid price of $4,097,546.00 to P. & J. Artukovich and Steve P. Rados, Joint Venturers. On June 30, 1950 no work in the field had been started on Section AC and Section B was 47% completed.

3. Miscellaneous Contracts:

Contract 473 AR - For the erection of a 100,000 gallons elevated water tank in Potrero Heights District, City of San Francisco. The contract was awarded to Chicago Bridge and Iron Co. on February 24, 1949 and was completed on January 19, 1950 at a total cost of $36,036.70.

Contract No. 500 - For southern extension of Crystal Springs Pumping Station. This contract was completed on July 29, 1949 at a total cost of $81,967.85.

Contract No. 511-R - For an experimental filtration plant near Crystal Springs Dam, San Mateo County, California. The contract was awarded to Roy Madsen On March 20, 1950 and was completed on June 30, 1950 at a total cost of $6,900.00.

Contract No. 513: For the repavement of streets and sidewalk openings made by the Department for installation or repair work during the fiscal year 1949-50. The contract was awarded to the Pacific Pavements Company, Ltd., on June 6, 1949 and terminated June 30,1950 at a cost of $73,595.08. Repavement over trenches opened by other contractors, performing work for the Department, is not included under this annual paving contract,as each Contractor is required to provide his own paving.

Contract No. 514: For the rehabilitation of balance of Sunol Distribution System at Sunol, Calif. The contract was awarded to McGuire and Hester on July 5, 1949 and was completed November 1, 1949 at a total cost of $4,571.72.

Contract No. 526:For the gathering and delivering of walnut crop from the orchard at Sunol. The contract was awarded to Travis M. Boone on September 6, 1949 and completed on November 3, 1949 at a cost of $7,240.86.

Contract No. 538 - For the rehabilitation of the Dumbarton Bridge and pipes. The contract was awarded to J. H. Mohr Co. on March 13, 1950 at an estimated bid price of $58,777.00. On June 30, 1950 the work was 30% completed.

4. Informal Contracts:

The following work, involving amounts of less than $2,000., was done under a service order issued afer posting a bid invitation and receiving informal bids.

Informal Bid No. 86 - For painting rooms 403, 406 and 407 in Water Department Building, 425 Mason Street, San Francisco. This contract was awarded to A. Quandt & Sons, Inc. and work was completed on September 2, 1949.

Informal Bid No. 87 - For refinishing surfaces of Pulgas Water Temple at upper Crystal Springs Reservoir in San Mateo County. The contract was awarded to J. H. Mohr, Inc. and the work was completed October 28, 1949 at a cost of $894.00.

5. Engineering Agreement:

The Public Utilities Commission on May 15 appointed Hyde Forbes, Consulting Engineer Geologist, to make test borings and tests of soil samples at the site of the new Lake Merced Pumping Plant and to render a written report of same with recommendations as to the probable safe bearing capacity of the soil.

AGRICULTURAL DIVISION

On July 1, 1950, the area owned in fee was 63,275.3 acres, which was 331.6 acres less than the acreage shown in the Annual Report of June 30, 1949. This decrease is made up as follows:

	Acres	Acres
PURCHASES:		
Land for Bay Division Pipeline		82,616
Market Street Railway Right of Way		58.0
SALES:		
Parcel 45 Portion of Ravenswood Lands	450.7	
Parcel 69 Portion of Pleasanton Lands	21.5	
	472.2	140.616
Net decrease in acres	331.6	

Kind of Lease	Leased Acreage	No. of Leases	Income
AGRICULTURAL:			
CATTLE	29,718.000	15	$ 71,181.69
FLAT RATE	1,934.752	48	14,542.75
SHARE CROP	3,277.280	13	23,384.95
NON-AGRICULTURAL:			
FLAT RATES	95.650	57	6,995.71
OLYMPIC CLUB GOLF COURSE	17,350	1	2,400.00
ROYALTIES - ROCK QUARRY LAKE MERCED	24,500	1	11,920.68
ROYALTIES-BOATING & FISHING		1	457.32
ROYALTIES - CRYSTAL SPRINGS GOLF COURSE	172.530	1	8,935.21
TAXES PAID BY TENANTS			182.60
	35,240.062	137	$140,000.91
WALNUT ORCHARD:			
SALE OF WALNUTS	100.000	0	25,546,71
	35,340.062	137	$165,547.62

CATTLE LEASES:

During the year 1949-50, there were 15 cattle leases in effect with a total area of 29,718 acres under lease. The rentals during the year decreased 21.7 per cent bringing in an income of $71,181.69, or a decrease of $19,707.68 under the previous year. This decrease was due to a drop in the price of beef effective July, 1949.

All new cattle leases run for a period of five years from November 1, 1948, with rentals based on a sliding scale according to sale prices of cattle during specified periods in each year. Basic rental is stipulated in each lease.

This method of basing rentals on a sliding scale is in accord with our established practice, the cattlemen paying a higher rental when cattle prices are high and a correspondingly lower amount when lower prices prevail. Cattlemen, generally, seem to be in favor of this method of adjusting rentals. High prices for beef cattle still continue and are not likely to recede during the year 1950 with a possible war demand for beef in sight.

Rainfall was light during the winter months, causing some concern to cattlemen in general as well as an earlier than usual movement of range cattle to markets, so that really good top grade quality has been lacking to a large degree. Heavy sales of beef cattle and even breeding stock occurred in the winter of 1949 due to fear of both feed shortage and drought conditions.

Most of the cattle leases were renewed before expiration at material increase in rentals for the next five years. Lease provisions advocated erosion control, disease prevention, replanting, and installation of drinking water storage for cattle.

SHARE CROPS:

Thirteen leases on a share crop basis covering an area of approximately 3,277 acres, yield an income of $23,385 for crops. Some of these leases paid a cash rental in addition to the share of crops. The principal crops raised were oats, barley, wheat and alfalfa hay, and barley and wheat grain, all of which were sold at good prices. However, farm produce prices generally in 1950 are undergoing a considerable drop and were approximately 9% lower in 1949 than in 1948.

Two hundred acres of new alfalfa lands on the "Sunol Irrigable Lands" tract are now not only bringing in about three to four times the income to the City as when formerly in dry land (grain) farming, but are restoring fertility to these lands that had reached near exhaustion of their fertility by repeated cycles of grain and hay production. Of the water used in

irrigating these crops, approximately 40 to 60% runs through the soil and back into the City's filter tanks for City usage. One hundred acres of strawberries are producing heavily. The City receives a basic cash rent and one-quarter of the crop for the alfalfa, and a high cash rent for the strawberry land.

WALNUT ORCHARD:

The early maturing, early bearing Payne walnut variety, alternated with the reliable Franquette and Hartley Franquette walnut varieties, starts the City's income five years earlier by this type of Payne interplanting. All of these strawberry vines and walnut trees are making a very satisfactory growth.

The interplanting of strawberries between young walnut trees, for the first four years of young tree growth, provides a combination of leveling, fertilizing, cultivating and especially irrigating the City's young trees by the strawberry tenant without extra cost to the City.

Application of ammonia and vetch planting generally took the place of liming the ground for the walnut orchard but liming was applied to some spots in the old orchard.

A thinning out of the thickest limbs of many old walnut trees this season seemed to invigorate the trees of the 36 year old orchard. However, strong growth and the wide spread of tree branches, to a point where the trees touch each other, may make it advisable to remove alternate trees in the near future for better penetration of sunshine and light and to provide better soil sustenance.

The City's 620 acres at Pleasanton have been leased to a tenant who intends to raise roses. This lease requires the tenant to improve the City's land to the cost extent of between $50,000 and $75,000 and to pay a rental of about $25 per acre a year, ($104,000 in 8 years) as compared to $10 an acre a year received from the former tenant in 1948.

FENCING AND BOUNDARY LINES:

Fencing work on the properties was confined to the usual repairs and upkeep of boundary fences. All labor was furnished by the tenants and material was furnished by the department.

CARE OF PROPERTY:

Morning Glory and mustard infestation is being considerably retarded in hay lands and the 105 acres of strawberry lands. Infestations have been practically eliminated in the

ne hundred acre walnut orchard around Sunol but morning glory eeds eradication on the Pleasanton properties.

Good cooperation is generally experienced between the gricultural Division personnel and the tenants in arriving at ecisions and agreements. Fertilizers, to be used by the tenants n City lands needing same, are discussed and their use agreed pon to the mutual advantage of the parties involved.

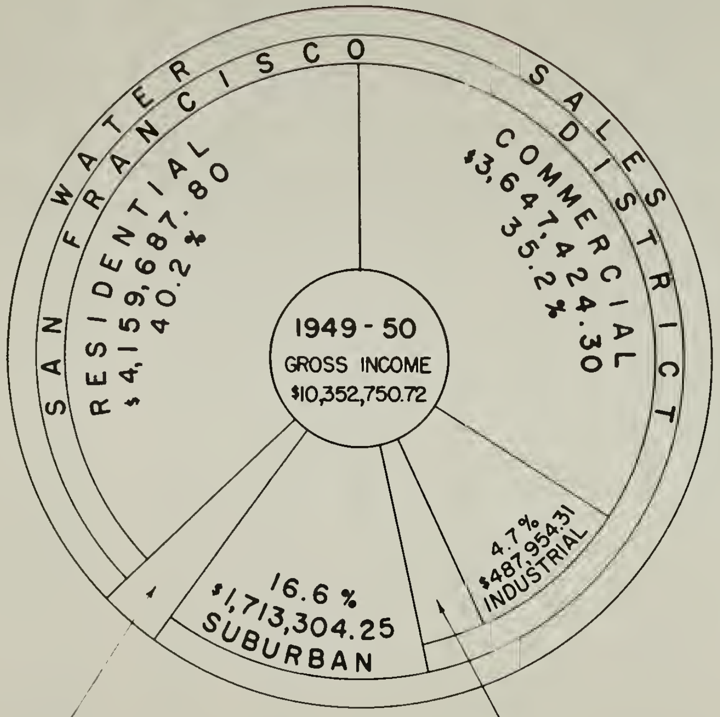
Sanitary provision measures are strictly enforced in all eases to insure against water pollution.

WALNUT CROP AND VALUE DURING CITY OWNERSHIP

	Total Yield Pounds	Gross Value	Net Cash Received	Association Charges % of Gross *	Packing House Charges per lb.
1930	110,361.	23,905.44	20,024.55	16.23	$.0138
1931	91,570.	13,778.73	12,272.73	10.93	.0091
1932	206,795.	28,994.25	20,391.18	29.67	.0070
1933	153,080.	23,635.21	17,905.45	24.24	.0073
1934	136,672.	18,039.52	13,236.00	26.63	.0059
1935	209,095.	27,359.11	22,719.87	16.96	.0045
1936	187,605.	27,865.13	24,947.57	10.47	.0046
1937	179,954.	23,808.71	21,102.05	11.37	.0042
1938	258,934.	36,812.05	31,801.16	13.61	.0090
1939	153,770	12,747.35	11,366.74	10.83	.0124
1940	90,148.	13,570.25	11,671.08	14.00	.0100
1941	239,062.	37,182.09	29,807.07	19.83	.0088
1942	254,594.	45,744.85	44,000.73	3,81	.0068
1943	188,590.	49,552.64	48,373.84	2.38	.0082
1944	107,831.	29,487.66	26,901.72	8.77	.0138
1945	214,919.	62,893.03	58,474.64	7.03	.0126
**1946	240,883.	73,017.57	73,017.57	0	0
**1947	81,167.	16,700.11	16,700.11	0	0
**1948	196,529.	39,896.52	39,896.52	0	0
**1949	153,434.	25,546.71	25,546.71	0	0
Prior Years Adjust		3,431.54	3,431.54	---	---
	3,454,993.	633,968.47	573,588.83		

* Includes cost of surplus control, operating reserve and revolving fund in addition to actual Association charges for marketing expense.

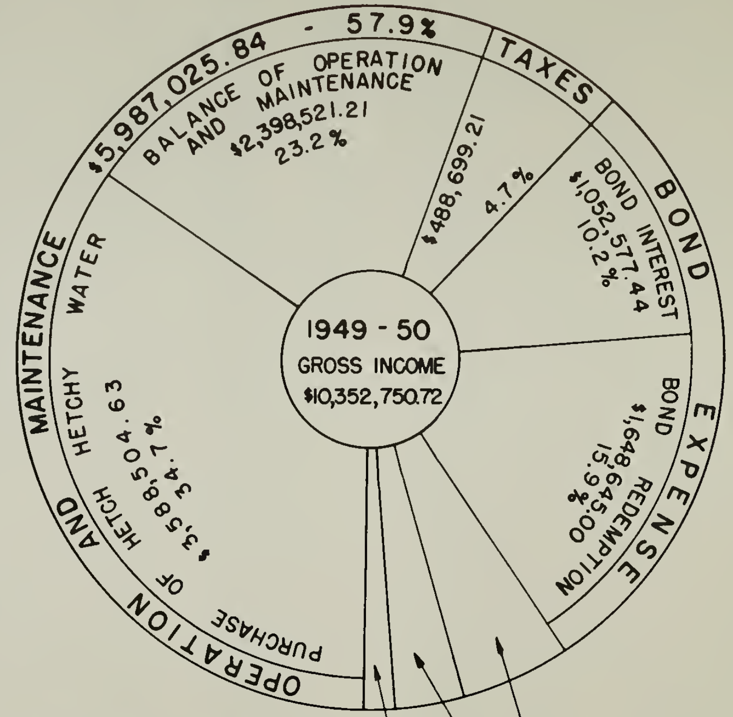
** Sold under competitive bids.



MISCELLANEOUS - $201,651.22 - 1.9 %

OTHER - $142,728.84 - 1.4 %

SOURCE OF INCOME
FISCAL YEAR ENDING JUNE 30, 1950



CONTRIBUTION TO HETCH HETCHY WATER SUPPLY - NET $171,359.39 - 1.6 %

ADDITIONS & BETTERMENTS
$540,500.00 - 5.2 %

SURPLUS - $463,943.84 - 4.5 %

DISPOSITION OF GROSS INCOME
FISCAL YEAR ENDING JUNE 30, 1950

ACCOUNTING AND AUDITING.

The accounts of the San Francisco Water Department are maintained strictly in accordance with the requirements of the State Public Utilities Commission and Section 64 of the Charter, and the accounts of the Department have been so coordinated with the Controller's system that no encumbrance or expenditure against budget estimates can be incurred without prior certification from the Controller that funds are available. As provided in Ordinance 9.0621, an annual audit of the Department is made as of June 30 by a firm of certified public accountants. The accountant's report is not available at the time the Department's financial statement goes to press, hence there may be minor differences between the two reports due to reclassifications made by the accountants.

Comments on Financial Statements:

An analysis of the disposition of Earned Surplus, together with additions thereto and deductions therefrom is shown in the body of these comments.

The following financial statements and cost reports are presented:

Balance Sheet June 30, 1950 (Exhibit A.)

Income Statement for the years ended June 30, 1949 and June 30, 1950 (Exhibit B.)

Surplus Account June 1950 (Exhibits C and D)

Comparative Statement of Operating Expenses for fiscal year 1948-49 and 1949-50 (Exhibit E)

Operating Expenses for past four fiscal years (Schedules Nos.1, 2, 3 and 4.).

Additions, Betterments and Replacements for fiscal year 1949-50 (Schedule No. 5).

Agricultural Division, Receipts and Expenses for past five years (Schedule No. 6)

Operating Expenses, City Distribution Division for fiscal year 1949-50 (Schedule Nos. 11 and 12).

Operating Expenses, Outside of San Francisco for fiscal year 1949-50 (Schedules Nos. 13 and 14.)

Sales of water for the fiscal year 1949-50 were $10,774,943.90 as against $10,932,354.55 for prior year, a decrease of $157,410.65. This decrease is mainly a lag in receipts due to shift from monthly to bi-monthly billing for 97 per cent of the accounts.

Other Income Amounts to $201,651.22 as against $245,593.36 for prior year, a decrease of $43,942.14. The principal causes for this decrease are reduction in Rental Income, including Crop Shares, and a smaller Walnut Crop.

Operating Expenses show a net decrease of $275,172.83 due principally to the following factors: Standby Charge and Purchase of Water $192,299.66, Pumping $73,256.69, Administrative and General $52,238.78 and Commercial Division $53,883.58. A part of these savings are a direct result of bi-monthly billing.

Following is a statement showing increases and decreases in Operating Expenses for the year under review:

Operating Expenses:

	Increase	Decrease
Source of Supply		3,456.67
Standby Charge and Purchase of Water		192,299.66
Pumping		73,256.69
Purification	627.14	
Transmission and Distribution	52,181.58	
Commercial Division		53,883.58
Administrative and General		52,238.78
Taxes - Actual	8,982.98	
Provision for Doubtful Accounts		1,277.64
Provision for Depreciation	17,067.26	
Municipal Taxes - Comparison*	22,381.23	
Net decrease	275,172.83	
	376,413.02	376,413.02

*Water delivered to Municipal Departments offset by taxes.

Other Operating Expenses decreased $65,606.38 due principally to retirement of $1,563.000.00 in bonds, amounting to a decrease in Interest Charges of $59,165.89. Agricultural, Walnut Orchard and Miscellaneous expenses reduced $ 7,584.42 while Rental Expense increased $1,143.93.

SAN FRANCISCO WATER DEPARTMENT

DISPOSITION OF EARNED SURPLUS

	To June 30, 1949	Year 1949 - 1950	To June 30, 1950
SURPLUS			
Contributed to:			
General Fund	$15,992,457.24	$	$15,992,457.24
Hetch Hetchy Water Supply	4,511,440.86	-1,313.65	4,510,127.21
Hetch Hetchy Power	1,228.59	-410,700.00	-409,471.41
		412,013 65	4100655 80
Appropriated for:			
Bond Redemption - Spring Valley	19,000,000.00	1,000,000.00	20,000,000.00
Bond Redemption - 1933 Water Distribution	7,035,594.33	563,000.00	7,598,594.33
1947 Hetch Hetchy Water Bond Fund	70,475.59	171,359.39	241,834.98
Additions and Betterments	12,589,980.79	360,000.00	12,949,980.79
Additions & Betterments- Lake Merced Project	1,250,000.00		1,250,000.00
Purchase of Land	22,858.50		22,858.50
Other Purposes	100,429.29		100,429.29
Surplus	-418,927.89	1,341,756.75	922,828.86
	$60,155,537.30	$3,024,102.49	$63,179,639.79
Add:			
Initial Earnings-Excess Earnings - Spring Valley Water Company	$ 4,152,652.24	$	$ 4,152,652.24
Valuation Municipal Water Works	100,000.00		100,000.00
Grants earned on Federal Projects	2,358,987.60		2,358,987.60
Surplus Material & Equipment from Construction Projects	373,820.56		373,820.56
Land Sales - Profit	450,345.97	-445.70	449,900.27
Bond Premiums	821,684.38		821,684.38
Palo Alto Pipe Line	332,271.90		332,271.90
Miscellaneous Additions	333,730.44	28,430.06	362,160.50
Bay Bridge Pump and Supply Line	120,423.26		120,423.26
	$9,043,916.35	$ 27,984.36	$ 9,071,900.71
Deduct:			
Contribution to General Fund	$15,992,457.24	$	$15,992,457.24
Deficit County Line Water Works	19,189.15		19,189.15
Payment to Spring Valley Water Co. for purpose of enabling City to take over properties in advance	745,274.31		745,274.31
Lands Contributed to City	172,564.67		172,564.67
Contribution to Other Public Service Enterprises	4,477,166.10		4,477,166.10
Miscellaneous Deduction from Surplus	260,320.49	14,760.06	275,080.55
Depreciation due to Devaluation	8,482,295.33		8,482,295.33
Depreciation notFunded(Accrued since 3/3/30).	9,576,850.07	865,404.87	10,442,254.94
	$39,726,117.36	$ 880,164.93	$40,606,282.29
	$29,473,336.29	$2,171,921.92	$31,645,258.21

EXHIBIT "A"

SAN FRANCISCO WATER DEPARTMENT

BALANCE SHEET - JUNE, 1950

REVISED

ASSETS

FIXED CAPITAL:		
In Service	$77,910,780.89	
Less Provision for Depreciation	28,966,361.10	
	48,944,419.79	
Construction in Progress	666,330.82	$ 49,610,750.61
CASH:		
Treasurer's Balance, Schedule Annexed	5,251,105.52	
Revolving Fund	30,000.00	
Other Cash	-	5,281,105.52
ACCOUNTS RECEIVABLE:		
Consumers' Accounts	915,985.29	
Less Reserve for Losses	4,000.00	
	911,985.29	
OTHER ACCOUNTS RECEIVABLE:		
Revenue	7,204.14	
Non-Revenue	308.41	919,497.84
INTERFUND ACCOUNTS:		
Schedule Annexed:		
Public Service Enterprises	91,608.46	
General City and County	250.92	91,859.38
Deferred Charges:		
Deposits for Orders of Possession	120,519.00	
Hetch Hetchy Water Supply	-	
Prepaid Taxes	-	
Materials and Supplies	744,424.92	
Reserve Fund Expenditures Unbilled	265,996.56	
Misc. Jobbing & Sales Accounts, etc.	1,523.98	
Public Utilities Commission	-	1,132,464.46
TOTAL ASSETS		$57,035,677.81

LIABILITIES

BONDED DEBT:		
Spring Valley Water Bonds, 1928	$21,000,000.00	
Water Distribution Bonds, 1933	2,246,000.00	
	23,246,000.00	
Matured, not presented for Payment:		
Spring Valley, 1928	13,000.00	
Water Distribution, 1933	-	$ 23,259,000.00
BOND INTEREST PAYABLE:		
Accrued, not due:		
Spring Valley Water Bonds, 1928	472,500.00	
Water Distribution Bonds, 1933	7,486.66	
	479,986.66	
Matured, not presented for Payment:		
Spring Valley, 1928	10,575.00	
Water Distribution, 1933	1,600.00	492,161.66
Expenditures made by 1947 Hetch Hetchy Water Bond Fund for the S.F.W.D.		520,297.17
Accounts Payable:		
Warrants Outstanding, Schedule Annexed	193,145.02	
Consumers Deposits and Advances	211,451.53	
General Creditors	93,260.20	
Accrued Payroll	8,046.14	505,902.89
Interfund Accounts:		
Schedule Annexed:		
Public Service Enterprises	422,741.11	
General City and County	44,262.85	467,003.96
Deferred Credits:		
Reserve for Compensation Insurance	81,718.27	
Reserve for Unpaid Rev. Fund Checks	4,150.44	
Other Deferred Credits	60,185.21	146,053.92
SURPLUS, Schedule Annexed		31,645,258.21
TOTAL LIABILITIES		$57,035,677.81

EXHIBIT "B"

SAN FRANCISCO WATER DEPARTMENT

INCOME ACCOUNT

TWELVE MONTHS ENDING JUNE 1950 AND 1949

REVISED

	TWELVE MONTHS ENDING JUNE 30 1950 $	 1949 $	Increase or - Decrease $	Cumulative from March 3, 1930 to June 30, 1950 $
SALE OF WATER:				
San Francisco	8,380,675.13	8,647,945.18	-267,270.05	138,705,487.71
Outside of San Francisco...........	1,713,304.25	1,625,087.10	88,217.15	14,021,145.95
Municipal Departments- Actual......	57,120.12	57,859.10	-738.98	1,196,898.84
" " -Comparison*..	623,844.40	601,463.17	22,381.23	9,367,383.79
	10,774,943.90	10,932,354.55	-157,410.65	163,290,916.29
OPERATING EXPENSES:				
Source of Water Supply............	287,722.28	291,178.95	-3,456.67	5,220,116.53
Standby Charge & Purchase of Water.	3,588,504.63	3,780,804.29	-192,299.66	18,714,585.92
Pumping	322,243.92	395,500.61	-73,256.69	5,295,785.51
Purification	102,974.95	102,347.81	627.14	1,288,317.85
Transmission and Distribution	691,392.34	639,210.76	52,181.58	7,429,414.07
Commercial Division	542,258.25	596,141.83	-53,883.58	8,069,989.06
Administrative and General.........	405,467.68	457,706.46	-52,238.78	6,322,601.15
Taxes - Actual	488,699.21	479,716.23	8,982.98	5,734,941.78
Provisions for Doubtful Accounts ..	2,022.36	3,300.00	-1,277.64	234,259.43
Provision for Depreciation	906,404.87	889,337.61	17,067.26	20,951,020.15
Municipal Taxes-Comparison*	623,844.40	601,463.17	22,381.23	9,383,622.51
	7,961,534.89	8,236,707.72	-275,172.83	88,694,653.96
PROFIT FROM OPERATIONS	2,813,409.01	2,695,646.83	117,762.18	74,596,262.33
OTHER INCOME:				
Rentals, including Crop Shares	147,779.99	180,441.39	-32,661.40	1,550,239.98
Interest Earned	15,069.91	13,094.14	1,975.77	428,936.38
Sale of Walnuts	25,546.71	39,896.52	-14,349.81	633,968.47
Miscellaneous	13,254.61	12,161.31	1,093.30	205,266.40
	201,651.22	245,593.36	-43,942.14	2,818,411.23
OTHER EXPENSE:				
Bond Interest	1,052,577.44	1,111,743.33	-59,165.89	32,696,172.14
Agricultural Division	19,796.28	21,864.43	-2,068.15	310,645.10
Walnut Orchard Expense	23,210.78	27,248.72	-4,037.94	405,070.18
Rental Expense	1,143.93		1,143.93	1,143.93
Miscellaneous	288.44	1,766.77	-1,478.33	72,434.55
	1,097,016.87	1,162,623.25	-65,606.38	33,485,465.90
NET INCOME	$1,918,043.36	$ 1,778,616.94	$ 139,426.42	$ 43,929,207.66

* Water Service to Municipal Departments offset by Municipal Taxes

EXHIBIT "C"

SAN FRANCISCO WATER DEPARTMENT

SURPLUS ACCOUNT

FOR TWELVE MONTHS ENDING JUNE 30, 1950

REVISED

SURPLUS, JUNE 30, 1949	$29,473,336.29	
ADD:		
Net Income for Twelve Months ending June 30, 1950	1,918,043.36	
Miscellaneous Additions to Surplus	33,969.64	
Contributions from Hetch Hetchy Power Division	410,700.00	
" " " " Water Supply	1,313.65	$31,837,362.94
DEDUCT:		
Miscellaneous Deductions from Surplus	$ 20,745.34	
Contributions to 1947 Hetch Hetchy Water Bond Fund	171,359.39	192,104.73
SURPLUS - June 30, 1950		$31,645,258.21

EXHIBIT "D"

SAN FRANCISCO WATER DEPARTMENT

COMPOSITION OF SURPLUS - CONDENSED

June 30, 1950

INITIAL SURPLUS - March 3, 1930			
Amortization on Contribution (Spring Valley)	$4,152,652.24		
Valuation of Municipal Water Works	100,000.00		
	$4,252,652.24		
Less: Additional Allowance for depreciation March 1, 1920 to March 3, 1930	2,327,916.67	$ 1,924,735.57	
ADDITIONS:			
Net Profit - March 3, 1930 to June 30, 1950	43,929,207.66		
Miscellaneous and year to year adjustments	4,344,596.97		
Contributions from Hetch Hetchy Power Division	409,471.41	$48,683,276.04	
Grants earned on Federal Public Works Project		2,358,987.60	
Year to Year - Additions to Surplus to June 30, 1950		1,504,481.49	$54,471,480.70
DEDUCTIONS:			
Contributions to General Fund		$15,992,457.24	
" " 1947 H.H. Water Bond Fund	$241,834.98		
" " H.H. Water Supply	4,428,890.69	4,670,725.67	
Lands Contributed:			
To City and County of San Francisco for Streets and Boulevards		172,564.67	
Excess of Adjusted Book Value of Plant Appraisal, December 31, 1937		1,990,474.91	22,826,222.49
SURPLUS - June 30, 1950			$31,645,258.21

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

EXHIBIT E

- Continued -

	Fiscal Year ended June 30	
	1950	1949
COMMERCIAL EXPENSES:		
Collections	$145,869.53	$166,236.27
Reading Meters	74,432.50	86,873.57
Bookkeeping Department	164,398.87	173,824.09
General	62,807.33	68,714.13
Inspection and Service	72,762.56	74,808.24
Shipping	21,987.46	25,685.53
	$542,258.25	$596,141.83
ADMINISTRATIVE AND GENERAL EXPENSE:		
Salaries - General Officers	$ 20,049.16	$ 19,843.06
Salaries - General Office Clerks	62,226.08	60,623.82
Miscellaneous Supplies and Expenses	4,583.16	4,546.79
Injuries and Damages	19,804.54	7,657.81
Retirement System Contributions	76,653.84	79,268.12
Mason Street Building Expense	34,009.42	36,125.76
Telephone Service	27,264.85	23,771.71
Guest Cottages and Rest Room	187.03	2,968.52
General Engineering	72,149.98	52,480.85
Hydrography	1,168.32	956.16
Miscellaneous	2,948.69	2,075.21
Compensation Insurance	10,223.88	10,171.08
Other Insurance	7,662.94	2,253.47
Repairs - Mason Street Building	3,305.89	3,924.94
Repairs - Telephone System	13,684.86	12,619.12
Professional Services	3,000.00	3,714.29
Public Utility Commission Expense	46,545.04	44,494.21
Property Taxes (Outside of San Francisco)	488,699.21	479,716.23
	$894,166.89	$ 847,211.15
Repairs - Extraordinary: Remodeling Fifth Floor, Mason St. Bldg.	-	$ 14,359.18
Repairs - Extraordinary: Recondition Alameda Supply Line	-	75,852.36
	$894,166.89	$ 937,422.69

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

EXHIBIT E

- Continued -

	Fiscal Year ended June 30	
	1950	1949
COMMERCIAL EXPENSES:		
Collections	$145,869.53	$166,236.27
Reading Meters	74,432.50	86,873.57
Bookkeeping Department	164,398.87	173,824.09
General	62,807.33	68,714.13
Inspection and Service	72,762.56	74,808.24
Shipping	21,987.46	25,685.53
	$542,258.25	$596,141.83
ADMINISTRATIVE AND GENERAL EXPENSE:		
Salaries - General Officers	$ 20,049.16	$ 19,843.06
Salaries - General Office Clerks	62,226.08	60,623.82
Miscellaneous Supplies and Expenses	4,583.16	4,546.79
Injuries and Damages	19,804.54	7,657.81
Retirement System Contributions	76,653.84	79,268.12
Mason Street Building Expense	34,009.42	36,125.76
Telephone Service	27,264.85	23,771.71
Guest Cottages and Rest Room	187.03	2,968.52
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Repairs - Mason Street Building	3,305.89	3,924.94
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Professional Services	3,000.00	3,714.29
Public Utility Commission Expense	46,545.04	44,494.21
Property Taxes (Outside of San Francisco)	488,699.21	479,716.23
	$894,166.89	$ 847,211.15
Repairs - Extraordinary: Remodeling Fifth Floor, Mason St. Bldg.	-	$ 14,359.18
Repairs - Extraordinary: Recondition Alameda Supply Line	-	75,852.36
	$894,166.89	$ 937,422.69

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 1

OPERATING EXPENSES

RESERVOIRS AND SOURCES	1946-47	1947-48	1948-49	1949-50
INSIDE OF SAN FRANCISCO:				
Lake Merced	$4,884.92	$4,595.16	$4,558.12	$5,146.96
OUTSIDE OF SAN FRANCISCO:				
SURFACE SOURCES:				
San Andres Reservoir	$16,737.26	$18,931.31	$15,487.12	$15,440.14
Crystal Springs Reservoir	38,631.50	47,274.77	40,403.68	50,950.63
Pilarcitos Reservoir	15,151.75	21,456.09	33,673.10	27,504.94
Calaveras Reservoir	10,572.42	14,664.80	11,344.55	12,750.27
	$81,092.93	$102,326.97	$100,908.45	$106,645.90
GROUND SOURCES:				
Sunol Filter Beds	6,639.12	14,673.85	16,741.14	11,713.64
Pleasanton Wells	1,002.78	9,544.51	15,999.06	3,437.16
	$ 7,641.90	$24,218.36	$ 32,740.20	$ 15,150.80
SUPPLY LINES AND AQUEDUCTS:				
Bay Division Pipe Lines	$39,378.09	$52,729.93	$ 29,994.11	$ 21,790.69
Stone Dam Aqueduct	7,386.40	12,137.85	8,051.86	6,143.20
Niles-Irvington Pipe Line	3,056.20	2,767.69	2,228.48	3,795.93
Other Supply Lines and Aqueducts	2,620.23	4,897.83	3,984.39	19,878.74
	$52,440.92	$72,553.30	$ 44,258.64	$ 51,608.56
Alameda System - General Expenses	26,602.91	28,112.19	31,387.89	30,693.37
Peninsula System - General Expenses	84,525.85	106,583.59	77,325.45	78,476.61
	$111,128.76	$134,695.78	$108,713.34	$109,169.98
TOTAL SOURCE OF SUPPLY EXPENSE	$257,189.43	$338,389.57	$291,176.95	$287,722.20

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 2
OPERATING EXPENSES

PUMP STATIONS	1946-47	1947-48	1948-49	1949-50
INSIDE OF SAN FRANCISCO:				
STEAM PLANTS:				
Central	$77,853.55	$95,926.35	$108,702.87	$ 96,356.15
City	637.56	43.48	65.93	108.40
Clarendon Height	473.70	630.70	503.17	475.14
	$78,964.81	$96,600.53	$109,271.97	$ 96,939.69
ELECTRIC PUMPS:				
Francisco Street		9,119.51	3,279.85	3,853.60
Alemany	23,706.90	48,356.44	41,126.45	40,953.82
Bay Bridge Pump - Treasure Island	9,142.52	7,590.99	6,656.97	4,968.93
Daly Hill	176.06	2.40	-0-	-0-
Forest Hill	6,233.20	6,449.05	7,717.55	7,717.28
Potrero Heights	271.18	485.23	769.03	1,584.22
Newcomb Avenue	5,421.77	5,879.16	6,046.11	6,354.40
Hillside	414.79	58.74	-0-	-0-
Fairview	604.73	687.09	510.87	543.09
Lincoln Park	750.35	1,180.33	920.91	840.25
Palo Alto	111.47	383.91	337.09	422.54
Twin Peaks	712.29	597.30	691.23	628.05
Lake Honda Booster		388.20	709.44	423.55
Sunset Booster	448.59	604.51	300.99	498.64
Sunset Source	101.52	-0-	16.25	1.92
Olmstead and University	732.53	1,417.62	2,050.51	1,191.73
Bernal Heights	372.15	402.89	394.27	435.97
St. Germain	908.48	27.79	-0-	-0-
General	539.90	869.27	818.10	858.29
	$50,648.43	$ 84,500.43	$ 72,345.62	$71,276.28
TOTAL INSIDE OF SAN FRANCISCO	$129,613.24	$181,100.96	$181,617.59	$168,215.97
OUTSIDE OF SAN FRANCISCO:				
Baden	6,598.86	3,854.98	1,505.96	1,841.01
Crystal Springs Pump	102,347.97	134,732.10	139,749.97	118,470.95
Bay Division Pump	1,883.56	2,108.75	2,601.63	828.76
Pleasanton Pump	959.98	7,405.88	18,051.10	3,858.36
Pleasanton Township Water District	1,811.84	2,039.70	3,549.09	723.70
Irvington Pump		24,744.97	48,425.27	28,305.17
TOTAL OUTSIDE OF SAN FRANCISCO	$113,602.21	$174,886.38	$ 213,883.02	$ 154,027.95
TOTAL PUMPING EXPENSES	$243,215.45	$355,987.34	$ 395,500.61	$ 322,243.92

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 3

OPERATING EXPENSES

PURIFICATION EXPENSES	1946-47	1947-48	1948-49	1949-50
INSIDE OF SAN FRANCISCO:				
College Hill	$1,069.34	$1,387.69	$1,302.03	$1,819.30
Lake Honda	4.12	14.54	234.93	67.46
Lombard Street	67.37	289.06	259.45	178.32
Sunset	207.63	161.08	220.95	266.84
University Mound	1,051.80	751.60	1,050.52	1,455.84
Lake Merced	147.17	442.49	1.06	-0-
TOTAL INSIDE OF SAN FRANCISCO	$2,547.43	$3,046.46	$ 3,068.94	$ 3,787.76
OUTSIDE OF SAN FRANCISCO:				
San Andres Reservoir	4,504.78	5,937.73	6,320.66	8,180.35
Crystal Springs Reservoir	6,918.83	13,900.84	6,031.67	6,910.53
Calaveras Reservoir	14,211.36	15,667.98	13,910.53	14,282.42
Sunol Purification System	905.20	1,461.99	2,176.73	1,217.37
Other Outside Stations	477.17	441.49	105.30	1,027.82
Coast Range Division, H.H.W.S.	17,084.43	23,266.78	24,474.68	22,529.72
Millbrae Laboratory	36,435.98	37,203.89	46,259.30	45,038.98
TOTAL OUTSIDE OF SAN FRANCISCO	$80,537.75	$ 97,880.70	$ 99,278.87	$ 99,187.19
TOTAL PURIFICATION EXPENSES	$83,085.18	$100,927.16	$102,347.81	$ 102,974.95

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 4
OPERATING EXPENSES

TRANSMISSION AND DISTRIBUTION	1946-47	1947-48	1948-49	1949-50
INSIDE OF SAN FRANCISCO:				
City Transmission Lines	$2,784.19	$5,614.17	$ 6,827.17	$ 9,784.33
Reconstruct and Relocate Pipe Lines		1,085.09	52,793.19	37,414.66
City Distribution Reservoirs	39,426.37	46,816.16	47,299.90	49,609.93
Meter Expenses	49,167.73	65,589.71	67,768.68	102,547.77
Street Department Expenses	21,902.69	23,045.85	25,964.76	27,651.49
Main Repairs	118,785.40	123,342.90	104,690.73	130,005.28
Service Connection Repairs	119,388.39	123,552.34	146,207.17	123,569.52
Repairs to Buildings and Equipment	4,167.28	9,265.49	5,604.04	3,124.06
Operation of Corporation Yard	8,291.39	14,541.72	16,356.98	13,114.25
Consumers' Premises Expenses	27,049.75	27,146.67	27,890.55	31,449.70
Superintendence	49,853.69	54,335.64	59,593.23	69,238.53
TOTAL INSIDE SAN FRANCISCO	$ 440,816.88	$ 494,335.74	$ 560,996.40	$597,509.52
OUTSIDE OF SAN FRANCISCO:				
Alameda Supply Line - Alameda Division	479.00	1,271.90	2,116.65	1,067.58
Alameda Supply Line - Peninsula Division	347.64	482.35	871.17	-0-
Alameda Transmission Line	11,970.02	9,041.15	16,543.94	3,903.20
Sunset Transmission Line			74.55	1,522.49
Crystal Springs Pump Aqueduct	5,892.67	5,042.09	10,400.85	7,092.21
New Crystal Springs Transmission Line	9,385.35	6,765.35	9,242.38	13,518.04
Old Crystal Springs Transmission Line	7,536.34	7,986.73	7,012.02	20,173.44
San Andres Transm. Line #1, to College Hill	6,932.61	5,476.16	6,152.82	14,418.85
" " " #2 " Lake Honda	2,713.93	6,384.14	3,648.66	4,066.05
" " " #3 " Merced Manor	1,697.53	3,097.96	1,382.58	2,597.64
Palo Alto Pipe Line	71.82	15.11	34.51	64.48
Niles Regulating Reservoir	3,476.99	3,682.20	3,499.30	4,619.71
Pleasanton Transmission Line	173.00	1,511.77	163.87	19.74
Meter Expense, Peninsula Division	12,041.64	14,555.59	16,110.03	20,345.23
" " Alameda "	159.43	223.20	961.03	274.16
TOTAL OUTSIDE OF SAN FRANCISCO	$ 62,877.97	$ 65,535.70	$ 78,214.36	$ 93,882.82
TOTAL TRANSMISSION AND DISTRIBUTION EXPENSES	$503,694.85	$ 559,871.44	$639,210.76	$ 691,392.34

SCHEDULE NO. 5

SAN FRANCISCO WATER DEPARTMENT

ADDITIONS, BETTERMENTS AND REPLACEMENTS

A/C No.	Contract No.	Name	Retirements	Additions	Engineering Office	Engineering Field	Force Account	Contracts	Material and Supplies	Contractual Service	Equipment	Miscellaneous
			$	$	$	$	$	$	$	$	$	$
1015		Landed Capital:										
		Purchased Land		613,547.86								613,547.86
		Sale of Land	52,503.05									
1020	500	Booster Pump - Crystal Springs		94,387.13	4,778.01	6,896.09		79,851.85				2,861.18
	517	Potrero Heights Pump		1,170.41	17.04	53.11	366.24		316.42	417.60		
		Mason Street Building		219.39							219.39	
		Sale of Buildings	1,677.23									
		Total Bldg., Structures & Grounds	$1,677.23	$ 95,776.93	$4,795.05	$6,949.20	$ 366.24	$79,851.85	$ 316.42	$ 417.60	$ 219.39	$ 2,861.18
1025		Alameda Supply Abandoned	$1,096,933.00	$								
		Sunset Sup. Line-Adjustment	43,049.87									
		Pleasanton Water Supply "	14,770.27									
		Stone Dam Aqueduct		35.23								$ 35.23
		Total Source of Supply	$1,154,753.14	$ 35.23								$ 35.23
1030		Irvington Pump Station		$ 11,800.00	$	$	$	$	$	$ 11,800.00	$	$
		Booster Pump -Crystal Springs		50,847.40	2,573.90	3,704.14		2,116.00	773.88		40,127.66	1,551.82
		Potrero Pumps		3,074.51	44.00	116.00	50.00	1,177.90	1,686.61			
		Total Pumping Sta. Equipment		$ 65,721.91	$2,617.90	$3,820.14	$ 50.00	$3,293.90	$ 2,460.49	$ 11,800.00	$ 40,127.66	$ 1,551.82
1035		Rock River Lime Treatment Plant		$ 4,640.15							$ 4,640.15	
		Purification Laboratory		1,187.18							1,187.18	
		Total Purification Capital		$ 5,827.33							$ 5,827.33	
		TOTAL PURIFICATION CAPITAL										
1040	473-A	Replace Potrero Hts. Tank		$ 32,596.16	$1,396.57	$1,467.54	$	$29,732.05				
		Cast Iron Mains under $2000.		79,666.41			79,666.41					
		Cast Iron Mains over $2000.		319,517.63	2,136.44	5,142.88	70,826.81	101,749.98	139,661.52			
		Install Meters		78,536.21			78,536.21					
		Install Services		86,899.34			86,899.34					
		Cut in Gate Valves		6,469.03			6,469.03					
		Pipe Retired from Service	$16,701.05									
		Services Abandoned	1,619.90									
		Total Transm. & Distribution	$18,320.95	$603,684.78	$3,533.01	$ 6,610.42	$322,397.80	$131,482.03	$139,661.52			
1041		Replace Distrib. Mains at Sunol		$ 9,705.82	$1,380.24	$ 1,212.90	$	$ 4,571.72	$ 2,540.96			
		Service Connection-City of Hayward		20,107.66	1,789.72	2,028.32	5,745.25	7,291.05	3,253.32			
		Total Outside Distribution		$ 29,813.48	$3,169.96	$ 3,241.22	$ 5,745.25	$ 11,862.77	$ 5,794.28			
1045		General Equipment	$	$ 7,535.13							$ 7,535.13	
1046		Automotive Equipment	2,004.90	28,010.09							28,010.09	
1048		Non-Operating Capital	11,710.72									
			$1,240,969.99	$1,449,952.74	$14,115.92	$20,620.98	$328,559.29	$226,490.55	$148,232.71	$12,217.60	$ 81,719.60	$ 617,996.09

SCHEDULE NO. 6
AGRICULTURAL DIVISION
RECEIPTS AND EXPENSES

	1945-46	1946-47	1947-48	1948-49	1949-50
RECEIPTS, AGRICULTURAL:					
Rentals - Cattle Leases	$ 41,223.30	$ 45,227.57	$ 57,014.42	$ 90,889.37	$ 71,181.69
Rentals - Flat Rates	12,029.56	9,455.46	10,652.41	14,233.97	14,542.75
Rentals - Share Crops	11,850.08	18,113.57	21,550.79	21,148.73	23,384.95
RECEIPTS, NON-AGRICULTURAL:					
Rentals - Flat Rates	11,009.83	10,182.60	11,781.73	9,935.52	9,578.31
Taxes Paid by Tenants	295.50	236.04	840.02	200.77	-
Royalties	9,906.28	20,827.78	28,585.86	24,277.24	11,920.68
Sales of Walnuts	62,893.03	73,017.57	16,700.11	39,896.52	25,546.71
Miscellaneous		3,646.79	5,588.48	11,597.79	9,392.53
TOTAL GROSS INCOME	$ 149,207.58	$ 180,707.38	$ 152,713.82	$ 212,179.91	$ 165,547.62
EXPENSES:					
Administrative and Superintendence	$ 6,037.91	$ 12,210.07	$ 13,461.14	$ 16,757.00	$ 16,365.83
Miscellaneous Office Supplies & Expenses	343.76	432.04	237.89	212.82	96.36
Automotive Service	579.38	760.44	1,038.67	1,244.53	1,080.66
Share Crops: Storage Insurance, Handling, Freight	402.90	1,010.07	511.14	505.56	474.70
Care of Properties: Repairs - Buildings, Structures and Grounds	4,674.40	3,828.55	4,647.47	3,144.52	1,778.73
Walnut Orchard:					
Care of Orchard	16,272.21	13,128.67	12,829.99	14,043.07	14,319.72
Crop Harvest	13,610.05	17,380.72	6,070.65	13,205.65	8,891.06
Packing House and Selling Expense	4,418.39				
NET OPERATING EXPENSE	$ 46,339.00	$ 48,750.56	$ 38,796.95	$ 49,113.15	$ 43,007.06
NET INCOME	$102,868.58	$ 131,956.82	$ 113,916.87	$163,066.76	$122,540.56

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 11

OPERATING EXPENSES 1949-1950

CITY DISTRIBUTION DIVISION - PUMPING STATION ACCOUNT

	Labor	Use of Equipment	Material and Supplies	Fuel or Power	Contractual Service	Total
STEAM PUMPS:						
Central	$52,771.48	$ 64.81	$ 557.55	$42,905.59	$ 56.72	$ 96,356.15
City	103.60	4.80				108.40
Clarendon Heights	463.49	7.58	4.07			475.14
	$53,338.57	$ 77.19	$ 561.62	$42,905.59	$ 56.72	$ 96,939.69
ELECTRIC PUMPS:						
Alemany	$ 4,911.77	$ 32.81	$ 114.55	$35,894.69	$	$ 40,953.82
Bay Bridge - Treasure Is.	528.18	52.48	4.64	4,335.63	48.00	4,968.93
Bernal Heights	325.78	34.07		76.12		435.97
Fairview	289.76	30.72	2.93	219.68		543.09
Forest Hills	668.12	99.96	276.61	6,585.19	87.40	7,717.28
Francisco Street	352.69	32.76	10.98	3,457.17		3,853.60
Lake Honda	398.74	18.63	6.18			423.55
Lincoln Park	370.15	54.91	54.83	360.36		840.25
Newcomb Avenue	736.58	70.13	15.80	5,505.69	26.20	6,354.40
Olmstead & University	354.98	44.17	50.11	723.66	18.81	1,191.73
Palo Alto	347.87	38.88	18.27	17.52		422.54
Potrero Heights	679.98	80.53	483.68	201.04	138.99	1,584.22
Sunset Booster	486.66	11.98				498.64
Sunset Source			1.92			1.92
Twin Peaks	309.65	29.79	27.85	260.76		628.05
General	363.14	17.03	119.80		358.32	858.29
	$11,124.05	$ 648.85	$1,188.15	$57,637.51	$ 677.72	$ 71,276.28
TOTAL INSIDE SAN FRANCISCO	$64,462.62	$ 726.04	$1,749.77	$100,543.10	$ 734.44	$ 168,215.97

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 12

OPERATING EXPENSES - 1949-1950
CITY DISTRIBUTION DIVISION

SOURCE OF SUPPLY:	Labor	Use of Equipment	Material & Supplies	Contractual Service	Paving	Miscellaneous	Total
Lake Merced	$4,819.47	$ 50.39	$ 195.65	$ 81.45	$	$	$ 5,146.96
PURIFICATION:							
College Hill	372.34	13.18	1,182.96	250.82			1,819.30
Sunset Reservoir	72.83	3.75	190.26				266.84
University Mound	228.58	11.34	1,025.42	190.50			1,455.84
Lombard	31.46	1.07	138.57	7.22			178.32
Lake Honda	58.23	4.33	4.90				67.46
Total	$ 763.44	$ 33.67	$ 2,542.11	$ 448.54			$ 3,787.76
TRANSMISSION AND DISTRIBUTION:							
City Transmission Lines	$8,535.18	$ 551.12	$ 648.96	$	$	$ 49.07	$ 9,784.33
City Reservoirs	45,026.99	1,495.42	1,792.81	1,286.92		7.79	49,609.93
Meter Expense	47,771.11	1,287.59	35,968.94	471.46	16,442.70	605.97	102,547.77
Street Department Expense	26,691.28	926.81	33.40				27,651.49
Operation of Corporation Yard	8,649.19	393.64	2,444.27	1,137.79		489.36	13,114.25
Superintendence	67,171.91	1,505.12	169.63	143.77		248.10	69,238.53
Consumers' Premises Expenses	31,023.34	208.09	3.37	214.90			31,449.70
Repairs - Distribution Mains	96,029.54	8,131.01	13,820.12	317.27	10,982.57	724.77	130,005.28
Repairs - Service Connections	87,802.59	7,233.16	13,614.39	367.58	12,665.85	1,885.93	123,569.52
Repairs - Building and Equipment	2,423.64	7.53	574.59	.50		117.80	3,124.06
Reconstruct & Relocate Pipe Lines	28,706.62	2,436.02	4,151.88	2,118.64		1.50	37,414.66
	$449,831.39	$ 24,175.53	$ 73,222.36	$ 6,058.83	$ 40,091.12	$ 4,130.29	$ 597,509.52
TOTAL CITY DISTRIBUTION DIVISION	$455,414.30	$ 24,259.59	$ 75,960.12	$ 6,588.82	$ 40,091.12	$ 4,130.29	$ 606,444.24

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 13
OPERATING EXPENSES - 1949-1950
OUTSIDE OF SAN FRANCISCO

SOURCE OF SUPPLY:	Labor	Use of Equipment	Material and Supplies	Contractual Service	Miscellaneous	Total
SURFACE SOURCES:						
San Andres Reservoir	$13,824.84	$ 237.89	$ 716.40	$ 553.01	$ 108.00	$15,440.14
Crystal Springs Reservoir	41,478.83	2,322.31	4,573.55	1,299.90	1,276.04	50,950.63
Pilarcitos Reservoir	22,657.67	1,215.20	3,503.71	113.98	14.38	27,504.94
Calaveras Reservoir	10,631.84	490.37	576.08	983.74	68.24	12,750.27
Total	$88,593.18	$ 4,265.77	$ 9,369.74	$ 2,950.63	$ 1,466.66	$106,645.98
GROUND SOURCES:						
Sunol Filter Beds	$ 9,736.21	$ 185.19	$ 849.12	$ 943.12		$ 11,713.64
Pleasanton Wells	497.53	56.62	13.61	2,754.60	114.80	3,437.16
Total	$10,233.74	$ 241.81	$ 862.73	$ 3,697.72	$ 114.80	$ 15,150.80
SUPPLY LINES:						
Bay Division Pipe Line (Penins. Div.)	$11,291.89	$ 881.01	$ 1,965.36	$ 283.99	$ 76.70	$ 14,498.95
Stone Dam Aqueduct	4,702.30	600.80	766.05	74.05		6,143.20
Niles - Irvington Pipe Line	2,701.89	1,032.65	1.40	59.99		3,795.93
Bay Div. Pipe Lines (Alameda Division)	5,617.12	1,035.96	555.76	58.55	24.35	7,291.74
Other Supply Lines & Aqueducts (Penins. Div)	2,311.76	61.78	143.77	15,823.67		18,340.98
Other Supply Lines (Alameda Division)	1,311.12	123.43	99 91	3.30		1,537.76
Total	$27,936.08	$ 3,735.63	$3,532.25	$16,303.55	$ 101.05	$ 51,608.56
GENERAL EXPENSES:						
Alameda System	$27,061.70	$ 1,809.73	$1,339.10	$ 482.84	$	$ 30,693.37
Peninsula System	72,099.52	555.24	3,522.95	2,104.81	194.09	78,476.61
Total	$99,161.22	$ 2,364.97	$4,862.05	$ 2,587.65	$ 194.09	$109,169.98
TOTAL SOURCE OF SUPPLY	$225,924.22	$10,608.18	$18,626.77	$25,539.55	$1,876.60	$282,575.32

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 14
OPERATING EXPENSES - 1949-1950
OUTSIDE OF SAN FRANCISCO

PUMPING STATIONS	Labor	Use of Equipment	Material & Supplies	Fuel or Power	Contractual Service	Miscellaneous	Total
Baden Pump	$ 1,503.70	$ 53.84	$ 113.25	$ 26.40	$ 143.82	$	$ 1,841.01
Crystal Springs Pump	20,854.72	1,304.74	800.02	94,515.11	996.36		118,470.95
Bay Division Pump	595.27		8.01	225.48			828.76
Pleasanton Pump	1,166.55	35.11	100.82	2,258.91	296.97		3,858.36
Pleasanton Township Water District		1.22		722.48			723.70
Irvington Pump	5,893.09	207.43	26.87	21,870.20	307.58		28,305.17
OUTSIDE PUMPING EXPENSES	$30,013.33	$1,602.34	$1,048.97	$ 119,618.58	$ 1,744.73		$ 154,027.95
PURIFICATION							
San Andres Reservoir	$ 1,629.86	$ 334.46	$5,004.66		$ 1,211.35		$ 8,180.35
Crystal Springs Reservoir	1,455.32	447.24	4,890.11		117.86		6,910.53
Calaveras Reservoir	2,697.47	962.07	9,648.98		973.90		14,282.42
Sunol Purification System	586.56	33.00	592.81		5.00		1,217.37
Other Outside Stations	839.10	60.40	111.11		17.21		1,027.82
Coast Range Division - HHWS	1,552.97	1,974.63	17,077.22		1,924.90		22,529.72
Millbrae Laboratory	36,639.23	4,216.16	1,306.94		3,222.51	-345.86	45,038.98
OUTSIDE PURIFICATION EXPENSES	$45,400.51	$ 8,027.98	$ 38,631.83		$ 7,472.73	-$ 345.86	$99,187.19
TRANSMISSION AND DISTRIBUTION							
PENINSULA DIVISION:							
Alameda Transmission Line	$ 3,014.15	$ 697.57	$ 150.26		$ 41.22		$ 3,903.20
Crystal Springs Aqueduct	6,643.72	237.24	139.25		72.00		7,092.21
Crystal Springs Aqueduct (New)	13,321.29	122.89	43.71		30.15		13,518.04
Crystal Springs Aqueduct (Old)	15,976.17	1,330.30	2,556.33		266.88	$ 43.76	20,173.44
San Andres Transm.Line #1 to College Hill	10,123.17	650.84	3,306.81		184.81	153.22	14,418.85
San Andres Transm.Line #2 to Lake Honda	3,918.05	54.34	48.16		45.50		4,066.05
San Andres Transm.Line #3 to Merced Manor	2,080.67	63.88	406.54		46.55		2,597.64
Sunset Transmission Line	987.70	64.17	22.32		23.32	424.98	1,522.49
Palo Alto Pipe Line	63.28				1.20		64.48
Meter Expense	14,049.47	1,451.37	4,600.62		243.77		20,345.23
TOTAL PENINSULA DIVISION EXPENSES	$70,177.67	$ 4,672.60	$11,274.00		$ 955.40	$ 621.96	$ 87,701.63
ALAMEDA DIVISION:							
Niles Regulating Reservoir	$ 4,571.67	$ 122.30	$ 104.66		$ 21.08		$ 4,819.71
Alameda Supply Line	681.34	72.00	314.24				1,067.58
Pleasanton Transmission Line	18.39	1.35					19.74
Meter Expense	185.72	78.41	1.39		8.64		274.16
	$ 5,457.12	$ 274.06	$ 420.29		$ 29.72		$ 6,181.19
TOTAL TRANSMISSION AND DISTRIBUTION EXPENSES OUTSIDE OF CITY OF SAN FRANCISCO	$75,634.79	$ 4,946.66	$11,694.29		$ 985.12	$ 621.96	$ 93,882.82

CHARGES OF NON-PAYING MUNICIPAL ACCOUNTS
FOR THE FISCAL YEARS 1948-1949 and 1949-1950

	1948-1949	1949-1950	INCREASE	DECREASE
Hydrants	$ 248,366.90	$ 250,600.00	$ 2,233.10	$
Auxiliary Fire System	17,528.23	16,737.99		790.24
Fire Boats	472.78	530.46	57.68	
Fire Department	8,077.57	8,115.25	37.68	
Police Department	4,146.51	4,332.64	186.13	
Parks	109,968.64	138,462.90	28,494.26	
Golden Gate Park - Proper	48,587.88	50,254.17	1,666.29	
Playgrounds	31,695.09	33,243.30	1,548.21	
Libraries	2,025.40	1,933.05		92.35
Opera House & War Memorial Bldg.	2,148.12	2,052.18		95.94
" " " " " "	857.60	879.76	22.16	
" " " " " "	36.00	36.00		
Memorial Museum-Station M-Golden Gate Park Fulton & 10th Ave.	323.99	398.43	74.44	
Curator-Palace of Legion of Honor-Lincoln Park-Clement & 39th Ave.	385.75	262.47		123.28
Juvenile Court and Detention Home	1,295.04	1,059.24		235.80
Purchaser of Supplies-City & Co. of S.F.	397.19	309.07		88.12
Exposition Auditorium	1,035.54	941.48		94.06
Dept. of Public Works (Public Bldgs.)	14,346.41	12,893.11		1,453.30
" " " " (Street Work & Sewers)	469.66	398.03		71.63
" " " " (Street Cleaning)	10,172.60	10,134.70		37.90
" " " " (Parked Areas Pub. Sts.)	6,222.04	5,987.18		234.86
Dept. of Electricity-General Alarm Station	263.71	330.09	66.38	
Dept. of Public Health	24,603.90	23,060.76		1,543.14
" " " "	1,555.78	1,564.50	8.72	
Hassler Health Farm	6,725.60	6,155.85		569.75
Relief Home	16,814.86	17,913.90	1,099.04	
Public Welfare Department	350.31	368.48	18.17	
Registrar of Voters	46.53	85.93	39.40	
Municipal Railway	7,000.09	8,902.48	1,902.39	
" " (Track Repairs)	26.84	5.50		21.34
Municipal Airport	10,921.16	4,826.18		6,094.98
Troughs	68.45	63.89		4.56
S.F. County Jail	23,233.78	17,668.64		5,565.14
Retirement Board	311.97	211.87		100.10
City Planning Commission	181.25	184.79	3.54	
Steinhart Aquarium, Academy of Science	800.00	1,278.30	478.30	
Academy of Sciences		31.96	31.96	
Aquarium		1,629.87	1,629.87	
	$ 601,463.17	$ 623,844.40	$ 39,597.72	$ 17,216.49
Net Increase			$ 22,381.23	

CHARGES OF PAYING MUNICIPAL ACCOUNTS
FOR THE FISCAL YEARS 1948-1949 & 1949-1950

	1948-1949	1949-1950	DECREASE
SCHOOLS	$ 57,892.79	$ 57,120.12	$ 772.67
TOTALS	$ 57,892.79	$ 57,120.12	$ 772.67

APPENDIX

TO

REPORT OF SAN FRANCISCO WATER DEPARTMENT

TABLE	DESCRIPTION
1	San Francisco Rainfall
2	Rainfall - Watershed Stations
3	Reservoir Storage
4	Water Drawn from Hetch Hetchy and Auxiliary Sources
5	Source of Water Conveyed Across San Francisco Bay
6	Water Delivered Through Pipe Lines
7	Water Delivered at the Consumer's Meters
8	Average Daily Water Consumption Since 1865
9	Average Daily Consumption by Districts
10	Peak Day Consumption by Districts
11	Meters in Service, San Francisco District
12	Meters in Service, Suburban District
13	Official Meter Tests
14	Unit Cost for Meter Maintenance
15	Unit Cost of Meter Installation
16	Unit Cost of Service Connection
17	Street Main Taps and Service,Connection Record
18	Comparative Pumping Costs
19	Record of "Bad Water" Complaints
20	Record of Water Complaints
21	Pipe Records, City Distribution System
22	Valve Records, City Distribution System
23	Contract Data

TABLE NO. 1

SAN FRANCISCO RAINFALL

(U. S. Weather Bureau Records)

Month	Season 1946-47 inches	Season 1947-48 inches	Season 1948-49 inches	Season 1949-50 inches	Normal 1949-50 inches
July	0.06	0	.02	.06	.02
August	0	0	.02	.04	.01
September	0.06	0	.09	0	.45
October	0.15	2.42	.20	.08	1.12
November	2.73	1.06	1.18	1.18	2.35
December	2.77	1.84	4.75	2.77	3.95
January	1.35	1.00	2.20	7.40	4.54
February	2.65	2.32	3.04	2.33	3.85
March	3.64	3.36	5.85	1.65	3.14
April	0.17	3.04	0	.87	1.61
May	0.67	0.54	.93	.37	.80
June	0.64	0.01	0	.03	.18
Totals	14.89	15.59	18.28	16.78	22.02

1949-50 Season 76.20% of Normal.

TABLE NO. 2

RAINFALL - WATERSHED STATIONS

(Water Department Records)

Station	Season 1946-47 inches	Season 1947-48 inches	Season 1948-49 inches	Season 1949-50 inches	Normal 1949-50 inches
San Francisco	14.89	15.59	18.28	16.78	22.02
Pilarcitos	25.93	34.35	35.33	39.38	45.24
San Andres	17.83	24.21	26.43	27.79	37.43
Crystal Springs-Upper	16.65	20.92	21.88	24.26	32.21
Crystal Springs-Lower	14.81	18.66	21.90	24.36	27.56
Crystal Springs-Cottage	18.10	21.42	23.87	24.69	26.82
Lake Merced	15.07	15.90	18.91	18.06	21.30
Pleasanton	14.29	15.30	14.12	16.37	21.02
Calaveras	12.35	17.56	13.64	17.01	23.99
Sunol	12.76	15.18	13.79	16.21	20.43
Niles	12.78	14.50	13.40	14.98	19.67
Hetch Hetchy	27.54	33.06	25.84	30.03	33.56
Lake Eleanor	37.65	37.77	32.66	37.58	41.07
Moccasin	19.17	24.45	22.29	23.06	26.13

TABLE NO. 3

RESERVOIR STORAGE

(Exclusive of Hetch Hetchy Sources)

MILLION GALLONS

	1946-47		1947-48		1948-49		1949-50	
	Max. Apr.9	Min. Feb.8	Max. May 8	Min. June 30	Max. Apr.6	Min. Dec.25	Max. Apr.16	Min. Jan.6
Claveras	14,270	14,568	5,111	4,562	8,412	70	9,630	336
Crys.Springs	18,816	17,232	16,334	15,771	16,587	13,930	14,623	11,921
Sn Andres	4,915	5,273	6,143	5,859	5,905	5,041	5,886	5,561
Plarcitos	572	423	875	684	747	519	853	506
Lke Merced	2,621	2,618	2,609	2,562	2,556	2,544	2,322	2,228
Cty Res.	289	278	252	268	246	265	269	299
Totals	41,583	40,392	31,334	29,706	34,453	22,369	33,583	20,851

TABLE NO. 4

WATER DRAWN from HETCH HETCHY and AUXILIARY SOURCES

MILLION GALLONS

	1946-47	1947-48	1948-49	1949-50
Htch Hetchy Water Supply	22,594	22,840	22,464	20,785
Peasanton Wells & Sunol Filters	0	2,180	4,426	1,819*
Snset Wells	0	0	0	0
Totals	22,594	24,020	26,880	22,604

*No water was received from Pleasanton wells 1949-1950.

TABLE NO. 5

SOURCE OF WATER CONVEYED ACROSS SAN FRANCISCO BAY YEARLY AVERAGE, MILLION GALLONS DAILY

	1946-47	1947-48	1948-49	1949-50
Peasanton Wells and Sunol Filters	0.0	5.9	12.1	5.0
Claveras Reservoir	36.5	29.1	16.8	23.0
Htch Hetchy Water Supply	62.0	61.8	61.5	56.9
Totals	98.5	96.8	90.5	84.9

TABLE NO. 6

WATER DELIVERED THROUGH PIPELINES

Water Transported into San Francisco - (1949-50)

San Andres 54" Pipeline	32.8	M.G.D.
College Hill 30" Supply Line	7.0	"
Baden-Merced Branch 30" Pipeline	7.8	"
Crystal Springs 44" Pipeline	13.2	"
Crystal Springs 60" Pipeline	22.3	"
Sunset Supply 60" Pipeline	---	"
Total San Francisco consumption	83.1	M.G.D.

Water transported from Crystal Springs to San Andres Reservoir:

Crystal Springs Pump Aqueduct	34.6	M.G.D.

Water transported across San Francisco Bay:

Bay Division 60" and 66" Pipelines	84.9	M.G.D.
Alameda 36" Pipeline	0.0	

TABLE NO. 7

WATER DELIVERED
AT THE CONSUMERS METERS
SAN FRANCISCO DISTRICT

	1946-47	1947-48	1948-49	1949-50
Average Active Accounts	135,345	138,644	141,460	143,388
Number on June 30th	136,865	140,423	142,497	144,279
Metered Delivery (M.C.F.)				
Residential	1,244.9	1,251.1	1,309.3	1,262.5
Com'l & Ind'l	2,018.0	1,964.4	1,920.9	1,853.2
Municipal - Actual	19.9	19.4	20.7	20.3
Municipal - Comparisons	196.3	198.5	200.8	215.7
Total (M.C.F.)	3,479.1	3,433.4	3,451.7	3,351.7
Average (M.G.D.)	71.4	70.5	70.9	68.9
Consumption Rec(M.G.D.)	83.3	81.3	83.3	83.1
Difference (M.G.D.)	11.9	10.8	12.4	14.2
Ratio	14.3%	13.3%	14.9%	17.1%

TABLE NO. 7 (Cont.)

SUBURBAN DISTRICT

	1946-47	1947-48	1948-49	1949-50
Average Active Accounts	714	725	722	762
Number on June 30	729	720	724	801
Metered Delivery - (M.C.F.)				
Regular Rates	927.1	1010.5	1150.7	1203.4
Contract Rates	24.3	36.8	40.1	39.1
Free Deliveries (Rip.Contract)	23.9	22.9	23.0	25.1
Total (M.C.F)	985.3	1070.2	1213.8	1267.6
Average (M.G.D.)	20.2	22.0	24.9	26.0

TABLE NO. 8

AVERAGE DAILY CONSUMPTION SINCE 1865
CONSUMPTION IN MILLION GALLONS PER DAY

YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.
1865	2.4	1885	17.0	1905	34.9	1925	42.6
1870	6.0	1890	20.4	1910	35.6	1928	50.1
1875	11.7	1895	19.9	1915	42.6	1929	52.1
1880	12.7	1900	25.5	1920	36.2	1930	52.1

Note: At noon on March 3, 1930 the San Francisco Water Department acquired title to the operative properties of the Spring Valley Water Company.

Year	San Francisco	Sub-urban	Total System	Max. Day	Min. Day	Max. Month	Min. Month
1930-31	49.2	3.1	52.3	66.7	41.3	57.8	47.0
1931-32	49.3	2.8	52.1	65.6	39.6	59.4	47.5
1932-33	46.4	2.7	49.1	60.4	39.9	54.3	44.6
1933-34	47.3	2.6	49.9	64.3	39.1	53.7	45.1
1934-35	48.1	2.4	50.5	65.4	1.3	58.1	46.2
1935-36	52.3	2.5	54.8	68.0	43.0	62.1	50.3
1936-37	55.1	3.4	58.5	70.7	45.7	63.8	51.8
1937-38	53.3	5.0	58.3	72.4	46.7	65.4	53.4
1938-39	56.2	6.4	62.6	84.6	48.5	77.5	54.8
1939-40	59.6	9.0	68.6	89.5	51.6	76.6	60.9
1940-41	60.7	7.3	68.0	90.0	52.0	77.9	60.6
1941-42	63.5	7.7	71.2	94.5	53.1	85.7	61.7
1942-43	69.2	8.6	77.8	106.9	60.2	92.3	68.6
1943-44	76.1	11.4	87.5	109.9	70.4	101.1	76.8
1944-45	79.0	17.9	96.9	134.9	74.7	116.5	85.2
1945-46	83.7	17.2	100.9	131.9	72.9	115.3	88.0
1946-47	83.3	18.6	101.9	135.6	76.5	117.0	86.2
1947-48	81.3	19.7	101.0	138.3	74.2	122.6	88.0
1948-49	83.3	19.9	103.2	138.3	73.3	124.4	86.4
1949-50	83.1	19.6	102.7	139.1	73.8	120.7	88.0

NOTE: Consumption in certain areas adjacent to the Corporate Limits of the City and County of San Francisco are included in the figures in column headed "San Francisco" and are not included in the figures in Column headed "Suburban" in table No. 8.

TABLE NO. 9

AVERAGE DAILY CONSUMPTION BY DISTRICTS

	GALLONS			
District	1949-1950	1948-1949	Increase or Decrease	% inc. or de
Forest Hill	690,932	773,493	-82,561	10.7
Stanford Heights	10,995,112	10,619,137	+375,975	+ 3.5
Sunset-Lake Honda	34,794,025	33,032,190	+1,761,835	+ 5.3
College Hill	8,007,627	7,676,205	+331,422	+ 4.3
University Mound	26,997,592	29,413,646	-2,416,054	- 8.2
*Merced Manor	1,634,928	1,783,148	-148,220	- 8.3
Total City	83,120,216	83,297,819	-177,603	- 0.2
Suburban	19,598,315	19,923,771	-325,456	- 1.6
Total Entire System	102,718,531	103,221,590	-503,059	- 0.5

*Merced Manor consumption not measured directly: any inaccuracies would reflect in suburban and College Hill consumption.

TABLE NO. 10

PEAK DAY CONSUMPTION BY DISTRICTS

	GALLONS		
District	1949-1950	1948-1949	1947-1948
Forest Hill	1,256,000	1,327,000	1,353,000
Stanford Heights	13,789,000	14,859,000	13,150,000
Sunset-Lake Honda	43,669,000	44,848,000	39,882,000
College Hill	11,481,000	11,035,000	10,774,000
University Mound	35,126,000	40,372,000	39,207,000
Merced Manor	2,914,000	3,060,000	3,422,000
Total City	102,574,000	106,240,000	102,510,000
Suburban	41,423,000	37,747,000	37,477,000
Total System	139,051,000	138,270,000	138,323,000

TABLE NO. 11

METERS IN SERVICE - SAN FRANCISCO DISTRICT
AS OF JUNE 30, 1950

CLASS OF CONSUMER	5/8"	3/4	1"	1½"	2"	3"	4"	6"	8"	12"	Total
REVENUE AND NON-REVENUE PRODUCING AS OF JUNE 30, 1950											
REVENUE PRODUCING											
Commercial	21,067	953	1,926	2,109	3,114	9	47	217	204	1	29,647
Residential	114,544	209	787	249	11						115,800
Docks & Ship	146	8	30	49	104	1			1	2	341
Total	135,757	1,170	2,743	2,407	3,229	10	47	217	205	3	145,788
NON-REVENUE PRODUCING											
Commercial	938	15	25	20	22	1	1	8	5		1,035
Residential	875		1	1							877
Dock & ship						4					4
Total	1,813	15	26	21	22	5	1	8	5		1,916
TOTAL METERS INSTALLED	137,570	1,185	2,769	2,428	3,251	15	48	225	210	3	147,704

Total Meters in Service as of June 30, 1950		147,704
Less: Extra Meters in 769 Batteries. (2,204 meters - 769)	1435	
Less: Extra Meters in 40 consolidations (114 meters - 40)	74	
Non-Revenue Meters (Temporarily shut off)	1916	3,425
Number of Active Accounts as of June 30, 1950		144,279

NOTE: The above meter count includes 415 Automatic Sprinklers for fire purposes.

PREVIOIUS RECORDS:	1945-46	1946-47	1947-48	1948-49	1949-50
Total Meters	136,549	139,690	143,388	145,779	147,704
Increase	2,416	3,141	3,698	2,391	1,925
Idle Meters	1,477	1,512	1,685	1,858	1,916

TABLE NO. 12

METERS IN SERVICE - SUBURBAN DISTRICT

CLASS OF CONSUMERS	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"	Total
REVENUE AND NON-REVENUE PRODUCING AS OF JUNE 30, 1950											
REVENUE PRODUCING											
Under Regular Rates	518	26	50	33	330	-	15	46	18	2	1,059
" Spec. Contracts	4		1	1	29						35
Total	522	26	51	34	359	-	15	46	18	2	1,073
NON-REVENUE PRODUCING											
Under Regular Rates	9	2	6		4						21
Total	9	2	6		4	-					21
TOTAL METERS INSTALLED	531	28	57	34	363	-	15	46	18	2	1,094

Total Meters in service as of June 30, 1950	1,094
Less: Meters in excess of accounts - 272	
Less: Non-Revenue Producing Meters - 21	293
Number of Active Suburban Accounts June 30, 1950	801

COMPARISONS RECORD June 30, 1947	5/8"	3/4"	1"	1½"	2"	4"	6"	8"	10"	Total
Revenue Producing	521	30	48	31	293	14	33	8	2	980
Non-Producing	16	1	5	2						24
Total	537	31	53	33	293	14	33	8	2	1,004
Record June 30, 1948										
Revenue Producing	513	26	55	37	312	13	38	8	2	1,004
Non-Producing	17	1	1							19
Total	530	27	56	37	312	13	38	8	2	1,023
Record June 30, 1949										
Revenue Producing	507	24	52	37	325	13	41	10	2	1,011
Non Producing	20	5	4							29
Total	527	29	56	37	325	13	41	10	2	1,040

TABLE NO. 13

OFFICIAL METER TESTS

During Fiscal Year Ending June 30, 1950

PERCENTAGE OF VARIATION

	0%	1%	2%	2.5%	3%	3.5%	4%	5%	12%	14%	Number Tested Total	Ratio
Fast		8	8	1	4			1			22	59.5%
Slow		10			1						11	29.7%
O.K.	4										4	10.8%
Total	4	18	8	1	5			1			37	100.0%

PREVIOUS TOTALS

		0%	1%	2%	2.5%	3%	3.5%	4%	5%	12%	14%	Total
Year	1946	2	3	3				1		1	1	11
	1947	5	7	1	2	1	1					17
	1948	2	6	2		2						12
	1949		8			1						9

Refunds 1949-50 Account of over-registration - $10.70
Increases " " " " under-registration - 0.70

TABLE NO. 14

UNIT COST FOR METER MAINTENANCE

Year	Meters in use	Total Cost	Cost per Meter	Labor Cost per Meter	Material Cost per Meter
1943-44	132,873	$44,264.92	0.33	0.220	0.079
1944-45	134,133	46,602.31	0.35	0.212	0.099
1945-46	136,549	41,576.76	0.30	0.179	0.121
1946-47	139,690	49,167.73	0.35	0.203	0.147
1947-48	143,288	65,589.71	0.46	0.260	0.200
1948-49	145,779	67,768.68	0.46	0.254	0.206
1949-50	147,704	102,547.77	0.69	0.323	0.367

TABLE NO. 15

UNIT COST OF METER INSTALLATION

	1946-47	1947-48	1948-49	1949-50
Meters Set	3,766	3,917	3,098	2,890
Per cent ¾" and smaller	92.7	92.2	89.8	82.1
Labor	$1.61	$2.06	$4.16	$5.52
Supervision	00.34	0.42	0.22	0.30
Meter	13.95	15.11	18.73	20.31
Material	2.73	3.90	4.43	5.63
Equipment	0.17	0.19	0.16	0.59
Paving	0.15	0.36	0.70	1.32
Miscellaneous	0	0.01	0.01	0.05
	$18.95	$22.05	$28.42	$33.72

TABLE NO. 16

UNIT COST OF SERVICE CONNECTION

	1946-47	1947-48	1948-49	1949-50
Services installed	2,789	3,231	2,279	2,708
Per cent ¾ "	89.7	91.1	86.4	87.9
Labor	$10.79	$8.11	$16.50	$19.77
Supervision	2.13	1.66	0.77	0.92
Material	4.05	5.11	8.54	6.94
Equipment	2.01	1.22	1.80	2.24
Paving	2.67	2.93	6.61	5.77
Miscellaneous	0.05	0.39	0.02	0.01
	$21.70	$19.42	$34.24	$35.65

TABLE NO.17

STREET MAIN TAPS AND SERVICE CONNECTIONS RECORD

San Francisco District June 30, 1950

TAPS ON STREET MAINS

	Wharf	3/4"	1"	1½"	2"	3"	4"	6"	8"	12"	16"	TOTALS
June 30, 1949	297	154,653	4,137	3,222	2,298	710	344	319	213	12	2	166,207
Add 1949-50		1,926	162	54	59	19	17	14	13	1	-	2,265
June 30, 1950	297	156,579	4,299	3,276	2,357	729	361	333	226	13	2	168,472

SERVICE CONNECTIONS

	Services connected to street mains, as above	168,472
ADD	"Distributors", being one or more add'l connections to service pipes . . .	13,213
	TOTAL connections of record	181,685
DEDUCT	Disconnected services	35,490
	Net metered live services consisting of 145,788 active meters; less 1,509 extra meters in batteries, plus 1,916 services tempy S/O	146,195

PREVIOUS RECORDS	1946-47	1947-48	1948-49
Active	138,178	141,703	143,921
Shut-Off	1,512	1,685	1,858
TOTALS	139,690	143,388	145,779
Less extra battery meters	1,313	1,280	1,424
NET	138,377	142,108	144,355

SERVICE INSTALLATIONS

Fiscal Year 1949-50

DISTRICT	Taps	Distributors	Totals
Richmond District	65	24	89
Sunset "	523	127	650
No.Mkt. & West Add.	178	94	272
So.Mkt. & Tw. Pks.	1,500	94	1,594
Waterfront	-	-	-
TOTALS	2,266	339	2,605
Previous Years			
1946-47	2,465	421	2,886
1947-48	3,365	641	4,006
1948-49	1,966	404	2,370

AUTOMATIC SPRINKLER INSTALLATIONS

Oct. 26, 1932 to June 30, 1950

SIZE	1932-47	1947-48	1948-49	1949-50	Total	Installed prior to 10/26/32	GRAND TOTAL
4-inch	7	5	5	2	19		
6-inch	80	5	20	11	116		
8-inch	96	14	22	12	144		
12-inch	4	3	0	1	8		
TOTALS	187	27	47	26	287	163	450

TABLE NO. 18

COMPARATIVE PUMPING COSTS

SAN ANDRES PUMP	1946-47	1947-48	1948-49	1949-50
Water Pumped, Gallons	12,606,270,000	14,631,070,000	13,701,830,000	12,644,870,000
Electric Power, KWH	11,631,900	14,275,200	13,420,800	12,780,800
Power Cost	$ 81,919,56	$ 113,097.54	$ 114,103.66	$ 94,515.11
Labor Cost	14,938.35	15,646.87	16,742.50	16,483.51
Miscellaneous	3,356.21	5,987.69	8,861.33	7,472.33
Totals	$ 100,214.12	$ 134,732.10	$ 139,707.49	$ 118,470.95
Cost per Million Gallons	7.95	9.21	10.20	9.37
" " " " per foot of lift	0.0374	0.0413	0.0449	0.0416

CENTRAL PUMP	1946-47	1947-48	1948-49	1949-50
Water Pumped, Gallons	3,644,955,000	3,700,110,000	3,861,370,000	3,966,376,000
Gas burned, Cu. Ft.	102,747,100	99,135,200	13,931,200	15,345,700
Oil burned, Gallons	45,332	121,042	160,020	104,496
Electric Power, KWH	7,800	8,400	6,000	60,000
Fuel & Power Cost	$ 28,786.83	$ 48,687.22	$ 57,807.07	$ 44,105.59
Labor Cost	46,203.51	46,245.77	49,485.01	51,350.76
Miscellaneous	2,092.14	993.36	1,410.79	2,099.10
Totals	$ 77,082.48	$ 95,926.35	$108,702.87	$ 97,555.45
Cost per Million Gallons	21.15	25.93	28.15	24.60

TABLE NO. 19

RECORD OF BAD WATER COMPLAINTS

Comparisons of complaints received during Fiscal Years 1946-47 to 1949-50 with reference to the districts involved.

	1946-47	1947-48	1948-49	1949-50
Sunset Reservoir	-	-	-	205
University Mound	36	35	50	72
College Hill	53	24	106	27
Lake Honda Reser.*	76	62	98	-
Lake Honda Ocean View*	52	35	29	-
Sunset Lombard	3	9	7	41
Forest Hill	3	8	10	7
Stanford Heights	81	65	89	106
Presidio Heights	15	11	21	16
Merced Manor	2	5	6	20
Totals	321	254	416	494

*Now Sunset Reservoir

TABLE NO. 20

RECORD OF NO WATER COMPLAINTS

Fiscal Year 1946-47 to 1949-50

(a) Those for which the Department was responsible:				
Choked Pipes	46	61	75	97
Service or main broken	28	14	25	34
" " " too small	121	122	125	126
Elevation too high	50	57	81	70
S/O at main or meter	5	9	19	15
District tempy S/D	0	1	0	1
Totals	250	264	325	343
Percentage	30.9%	33.7%	33.0%	30.3%
(b) Those for which the Consumers were responsible:				
House Valves Closed	85	58	89	89
" Pipe too small	191	189	242	367
False Reports	209	181	183	191
Valves out of order	41	63	101	114
House Pipe broken	7	4	6	1
Bldg. too high	1	0	1	0
Overloaded service	26	25	38	27
Totals	560	520	660	789
Percentage	69.1%	66.3%	67.0%	69.7%
Total "No Water"	810	784	985	1,132
Large Bill Complaints	12,386	12,254	12,041	10,355

TABLE NO. 21

PIPE RECORDS
CITY DISTRIBUTION SYSTEM

Wrought Iron and Steel Pipe

Size	Total Pipe in Ground July 1, 1949	Pipe Laid 1949-50	Removed or Abandoned 1949-50	Total Pipe in Ground June 30, 1950
3/4"	12,203'	0'	0'	12,203'
1"	41,487	0	990	40,497
1¼"	3,928	0	0	3,928
1½"	175,420	0	2,416	173,004
2"	297,009	0	3,817	293,192
3"	27,474	0	860	26,614
4"	3,979	0	0	3,979
5"	804	0	0	804
6"	3,809	0	0	3,809
12"	6,555	0	0	6,555
13"	456	0	0	456
16"	25,587	0	0	25,587
20"	64,730	0	0	64,730
22"	25,309	0	0	25,309
23½"	9,087	0	0	9,087
24"	41,383	0	0	41,383
30"	27,174	2,050	1,930	27,294
33"	2,409	0	0	2,409
36"	40,892	0	0	4 ,892
37½"	8,896	0	0	8,896
44"	22,974	0	0	22,974
48"	11,504	0	0	11,504
60"	26,216	0	0	26,216
Total W.I.& S	879,285'	2,050'	10,013'	871,322'
		Transite Pipe		
6"	4,904'	537'	0'	5,441'
8"	7,999	1,736	0	9,735
Total Transite	12,903'	2,273'	0'	15,176'

Cast Iron Pipe

Size	Total Pipe in Ground July 1, 1949	Pipe Laid 1949-50	Removed or Abandoned 1949-50	Total Pipe in Ground June 30, 1950
2"	21,657'	937'	0'	22,594'
3"	60,675	0	225	60,450
4"	496,534	1,834	1,517	496,851
6"	1,710,665	16,300	62	1,726,903
8"	1,495,973	16,830	1,131	1,511,672
10"	6,348	0	0	6,348
12"	430,431	9,776	1,080	439,127
16"	275,716	2,655	0	278,371
20"	22,642	0	0	22,642
22"	19,058	0	0	19,058
24"	52,173	0	0	52,173
30"	6,108	0	0	6,108
Total C.I.	4,597,980'	48,332'	4,015'	4,642,297'
Total All	5,490,168'	52,655'	14,028'	5,528,795'
Miles	1,039.805	9.973	2.657	1,047.119

TABLE NO. 22

VALVE RECORDS
CITY DISTRIBUTION SYSTEM

Gates		Service Gates		Blowoffs		Air Valves		Check Valves	
2"	114	3"	418	3/4"	9	3/4"	37	1½"	7
3"	243	4"	402	1"	46	1"	38	2"	9
4"	1,186	6"	260	1½"	289	1½"	343	3"	1
6"	3,747	8"	188	2"	843	2"	233	4"	10
8"	3,482	12"	9	3"	198	3"	5	6"	26
10"	6			4"	265	4"	1	8"	29
12"	793			6"	162	6"	13	12"	3
16"	416			8"	116	8"	243	16"	3
20"	23			12"	21				
22"	20			16"	2				
24"	57								
30"	21								
36"	20								
37½"	2								
42"	3								
48"	1								

Stop Cocks	
5/8"	18
3/4"	140
1"	201
1½"	985
2"	2,741

TABLE NO. 23

CONTRACT DATA 1949-1950

Con. tract No.	Title of Contract	Division	No. of Bid- ders	Contractor	Date of Award	Date of Com- pletion	% Com- pletion 3/30/50	Bid Price	Contract Cost to 6/30/50
473AR	Erection of a 100,000 gallon Elevated Tank in Potrero Heights District	City Dist.	3	Chicago Bridge & Iron Co.	12/27/48	1/19/50	100	$30,477.35	$36,036.70
500	Crystal Springs Pump Station	Peninsula	8	C. Norman Peterson	11/22/48	7/29/49	100	81,174.55	81,967.85
508	6" & 8" cast iron mains in Athens from Madison to Peru	City Dist.	3	E. J. Treacy	5/9/49	8/6/49	100	4,683.55	4,059.86
509	8" cast iron mains and 8" fire sprinkler service in Quintara and Jones Street	City Dist.	3	Fred T.Fairey	5/23/49	8/6/49	100	5,841.30	4,553.91
510	6" & 8" cast iron mains in So. Hill Blvd., Rolph St. and Chicago Way	City Dist.	4	Fred T. Fairey	5/23/49	8/6/49	100	16,800.75	16,220.24
511R	Experimental Filtration Plant near Crystal Springs	Peninsula	8	Roy Madsen	3/20/50	6/30/50	100	6,900.00	6,900.00
513	For the Repaving of street and sidewalk openings 1949-50	City Dist.	1	Pac.Pavements	6/6/49	6/30/50	100	76,075.00	73,595.08
514	Rehabilitation of Balance of Sunol Distribution System	Alameda	3	McGuire & Hester	7/5/49	11/1/49	100	4,160.00	4,571.72
515	6" & 8" cast iron mains in Crizaba, Alpha & Silver Ave.	City Dist.	3	S.F.W.D.	7/25/49	6/17/50	100	15,114.75	11,183.88
516	4", 6" & 8" cast iron mains in Crocker Amazon Highlands	City Dist.	4	E.J.Treacy	8/8/49	1/7/50	100	12,561.35	11,236.32
517	Potrero Hgts Pump Station	City Dist.	8	R B.McNair	12/27/49	3/23/50	100	8,694.90	7,997.72
518	16" cast iron main in 45th Ave., Lawton to Lincoln Way	City Dist.	5	M.J.& H.Treacy	8/29/49	11/5/49	100	32,583.00	31,465.27

TABLE NO. 23 (Cont'd)

Contract No.		Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Completion 6/30/50	Bid Price	Contract Cost to 6/30/50
519	12" cast iron mains in Ocean Avenue and Victoria	City Dist.	5	J.I.Gallagher	10/3/49	12/13/49	100	$ 29,242.50	$ 30,453.67
520	6" cast iron main in Victoria Street between Sargent and Randolph	City Dist.	2	F.T.Fairey	8/29/49	11/14/49	100	3,637.50	3,473.30
521	Water Service to Royal Container Corporation	Peninsula	3	E.T.Haas Co.	6/27/49	11/30/49	100	8,625.00	8,616.5[illegible]
522	24" Service for City of Hayward	Alameda	6	Conduit Constr. Co.	8/22/49	11/25/49	100	6,632.00	6,291.05
523	12" cast iron mains in Calgary, Sawyer & Leland, Geneva to Delta	City Dist.	2	F.T.Fairey	9/19/49	11/19/49	100	36,060.50	36,904.35
524AC	Bay Division Pipe Line #3	Peninsula	10	United Concr Pipe Corp.	11/23/49	10/28/51	None	4,246,464.50	---
524B	Bay Division Pipe Line #3			Artukovich Bros. Inc.& Steve P. Rados	11/23/49	10/28/51	47.46	4,097,546.00	1,944,759.5[illegible]
525	6" & 8" cast iron mains in Niantic, Moffit & Farnum	City Dist.	6	[illegible].J.& H.Treacy	10/17/49	2/25/50	100	8,580.50	9,114.39
526	Walnut crop at Sunol 1949	Alameda	4	Travis H. Boone	9/6/49	11/3/49	100	14,000.00	7,240.86
527	6" & 12" cast iron mains in Loomis St. & in Visitacion Ave. East of Bayshore	City.Dist.	5	B. .Thomas	10/17/49	12/21/49	100	13,[illegible]10.75	13,696.80
528	6" cast iron mains San Bruno Ave. Wilde to Wabash	City Dist.	6	Lowrie Paving	10/17/49	1/5/50	100	5,596.15	5,022.27
529	6" & 8" cast iron mains in Bernal Heights Blvd. & States St.	City Dist.	6	Lowrie Paving	11/7/49	1/26/50	100	8,139.15	8,118.81
530	6" transite main in 47th Ave. bet. Ulloa & Vicente	City Dist.	4	F.T.Fairey	11/28/49	1/7/50	100	2,915.60	2,723.11

TABLE NO. 23 (Cont'd)

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Completion 6/30/50	Bid Price	Contract Cost to 6/30/50
531	6" & 8" cast iron mains in Peru Ave. & Valmar Terrace	City Dist.	5	F.T.Fairey	2/20/50	5/27/50	100	3,688.20	3,213.03
532	6" & 8" cast iron mains in Avalon bet. Moscow & Knox	City Dist.	5	F.T.Fairey	12/27/49	1/28/50	100	5,162.50	4,794.59
533	6" & 8" cast iron mains in Lakeshore Subdivision No. 4	City Dist.	6	F.T.Fairey	12/27/50	2/28/50	100	6,924.65	7,892.23
534	6" & 8" cast iron mains in Kirkham Heights Subdivision	City Dist.	6	Lowrie Paving	2/14/50	--	None	5,139.50	--
535	6" cast iron mains in Inca Court & Bancroft Ave., bet. Jennings and Keith Sts.	City Dist.	6	Lowrie Paving	2/7/50	3/8/50	100	5,867.75	4,672.59
536	Sutro Reservoir	--		--	--	--	None	--	--
537	6" & 8" cast iron mains in University, Dwight & Colby	City Dist.	7	Lowrie Paving	3/13/50	--	None	5,123.70	--
538	Rehabilitation - Dumbarton bridge and pipes	Peninsula		J.H. [illegible]ohr	3/13/50	--	30	58,777.00	17,476.55
541	8" cast iron mains in Beach St. bet. Jones & Taylor	City Dist.	7	F.T.Fairey	4/3/50	5/11/50	100	2,987.30	2,544.55
542	6" & 8" transite & 12" cast iron main in Lakeshore Subdivision No. 4 Ext.	City Dist.	7	Callahan Constr. Co.	4/17/50	6/19/50	100	12,053.70	10,379.56
543	6" & 8" cast iron main in Dwight & Bowdoin Sts.	City Dist.	6	B.Niles Thomas	5/[illegible]/50	6/17/50	100	4,144.50	3,242.20
545	6" & 8" cast iron main in Athens & Valmar	City Dist.	4	F.T.Fairey	5/31/50	--	None	3,578.05	--
548	Relining No. portion University Mound Tunnel	City Dist.	5	Johnson Western Gunite Co.	6/26/50			2,563.00	

ORGANIZATION AND PERSONNEL

G. W. Pracy	General Manager and Chief Engineer

WATER PRODUCTION AND ENGINEERING

T. W. Espy	Senior Engineer in Charge of Water Production
L. J. Archer	Senior Engineer in Charge of Design
C. A. Lauenstein	Construction Engineer - Special Construction
L. A. McAtee	Senior Engineer - Construction
W. A. Yount	Superintendent Alameda Division
W. R. Anderson	Assistant Superintendent Alameda Division
G. J. Davis	Superintendent Peninsula Division
John E. O'Marie	Assistant Superintendent Peninsula Division
G. E. Fanning	Photographer

CITY DISTRIBUTION

O. G. Goldman	Superintendent City Distribution
S. M. Tatarian	Assistant Superintendent City Distribution
A. G. Zecher	General Foreman City Pipe System
J. P. Curto	General Foreman Services and Meters
A. C. Doidge	Head Clerk
R. W. Tullis	Superintendent of Machine Shop

WATER PURIFICATION

H. C. Medberry	Engineer of Water Purification
E. W. Barbee	Assistant Engineer of Water Purification
H. W. Tracy	Assistant Engineer of Water Purification
H. L. Fruitman	Senior Water Chemist

WATER SALES

Joseph Conway	Manager, Water Sales Division
J. W. Cooper	Assistant Manager Water Sales Division
James Hennessy	Chief Clerk Collections
Kearce Fahy	Chief Clerk Consumers' Accounts
E. R. Benninger	Head Clerk Water Sales Division
C. C. Clark	Consumers' Complaint Investigator
Francis Lennon	Head Clerk Adjusting Division
J. E. Huntoon	Head Clerk Consumers' Accounts
Chas. Hynes	Head Clerk Service and Supply
J. P. Manning	Head Clerk Closing Bills
J. A. Ragsdale	Head Clerk Docks and Shipping
F. Ute	Chief Water Service Inspector

LANDS AND AGRICULTURE

H. C. Melone	Superintendent Agricultural Division
Frank Peters, Sr.	Assistant Superintendent Agricultural Division

ACCOUNTS

E. J. White	Senior Accountant
Z. H. Taylor	Accountant
H. M. Kinsey	Cashier

RETIRED 1949-50

During the past fiscal year, the following employees were retired from service, and recognition is given to their faithful service in the organization:

Leonard G. Bauer	Foreman Meter Repairman	45-2/3 years'servi
Sylvester M. Millard	Assistant Superintendent, Peninsula Division	36-1/6 years' "
Richard J. Bolles	Consumer's Serviceman	43-1/4 years' "
Hugh McNeilly	Service Man	31 years' service
Robert A. Carson	Laborer	24-1/6 years' "
Frank P. Peters	Assistant Superintendent, Agricultural Division	33-5/6 years' "
Jeremiah Riordan	Gatemen	45 years' "
William C. Nelson	Consumer's Serviceman	26 years' "

IN MEMORIAM

Name	Died	Length of Service
William D. Curr	October 30, 1949	10 years
Clyde E, Clay	April 13, 1950	2½ years